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gat aag aga aaa aga gaa caa gaa agc aaa gaa gaa aat agg cat att Asp Lys Arg Lys Arg Glu Gln Glu Ser Lys Glu Glu Asn Arg His Ile 471 476 481 486	1672
aga aat gaa aaa aga gta cct aca gaa cat ttg cag aag act aat aag Arg Asn Glu Lys Arg Val Pro Thr Glu His Leu Gln Lys Thr Asn Lys 487 492 497 502	1720
gaa act aag aaa acc act act gat tta aag aaa cag aat gaa cca aag Glu Thr Lys Lys Thr Thr Thr Asp Leu Lys Lys Gln Asn Glu Pro Lys 503 508 513 518	1768
act gat aag gga gaa gtc ctt gat aat ggt gtt tct gaa gga gca gat Thr Asp Lys Gly Glu Val Leu Asp Asn Gly Val Ser Glu Gly Ala Asp 519 524 529 534	1816
aat aaa gag ctt gca atg aaa gct gag agt ggt cca aat gaa aca aaa Asn Lys Glu Leu Ala Met Lys Ala Glu Ser Gly Pro Asn Glu Thr Lys 535 540 545 550	1864
aac aag gac cta aaa ttg agt ttt atg aaa aaa ttg aac tta act ctt Asn Lys Asp Leu Lys Leu Ser Phe Met Lys Lys Leu Asn Leu Thr Leu 551 556 561 566	1912
tct cct gct aaa aag caa cct gtt tcc cag gat aat cag cat aaa ata Ser Pro Ala Lys Lys Gln Pro Val Ser Gln Asp Asn Gln His Lys Ile 567 572 577 582	1960
act gat att ccc aag tcc agt ggt gta tgt gat tca gag tct tca atg Thr Asp Ile Pro Lys Ser Ser Gly Val Cys Asp Ser Glu Ser Ser Met 583 588 593 598	2008
caa gtt aaa aca gtg gca tat gtt ccc tcc ata agt gaa cat atc ttg Gln Val Lys Thr Val Ala Tyr Val Pro Ser Ile Ser Glu His Ile Leu 599 604 609 614	2056
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tta ttg gaa cca aag gtt gct ctt cta gca gtg act gaa ccc agg atc Leu Leu Glu Pro Lys Val Ala Leu Leu Ala Val Thr Glu Pro Arg Ile 631 636 641 646	2152
ggt atc tca gaa acc aac aag gaa gac gaa aat agt ttg tta gtt agg Gly Ile Ser Glu Thr Asn Lys Glu Asp Glu Asn Ser Leu Leu Val Arg 647 652 657 662	2200
tct gtt gac aat act atg cat tgt gaa gag ccc att tgt ggt aca gag Ser Val Asp Asn Thr Met His Cys Glu Glu Pro Ile Cys Gly Thr Glu 663 668 673 678	2248
act tcc ttc cca tct cct atg gaa ata caa cag aca gaa tcc ttg ttt	2296

Thr Ser Phe Pro Ser Pro Met Glu Ile Gln Gln Thr Glu Ser Leu Phe 679	684	689	694	
cca tca aca gga atg aaa caa acc att aat aat gga agg gca gca gct Pro Ser Thr Gly Met Lys Gln Thr Ile Asn Asn Gly Arg Ala Ala Ala 695	700	705	710	2344
cct gtg gta atg gat gta tta caa aca gat gtg tct caa aac ttt ggc Pro Val Val Met Asp Val Leu Gln Thr Asp Val Ser Gln Asn Phe Gly 711	716	721	726	2392
ttg gaa ttg gat acc aaa aga aat gat aat tca gat tat tgt ggt att Leu Glu Leu Asp Thr Lys Arg Asn Asp Asn Ser Asp Tyr Cys Gly Ile 727	732	737	742	2440
tct gaa ggt atg gag atg aag gtg gca ctt tca aca aca gtg agt gaa Ser Glu Gly Met Glu Met Lys Val Ala Leu Ser Thr Thr Val Ser Glu 743	748	753	758	2488
acc act gaa agc att ttg cag cct tca att gag gaa gct gat att ttg Thr Thr Glu Ser Ile Leu Gln Pro Ser Ile Glu Glu Ala Asp Ile Leu 759	764	769	774	2536
cca ata atg ctt tca gaa gat aat aac cca aaa ttt gag cct tct gtt Pro Ile Met Leu Ser Glu Asp Asn Asn Pro Lys Phe Glu Pro Ser Val 775	780	785	790	2584
ata gtt aca cca ctg gtt gag agt aag tcg tgt cat ctg gag cct tgc Ile Val Thr Pro Leu Val Glu Ser Lys Ser Cys His Leu Glu Pro Cys 791	796	801	806	2632
tta cct aaa gag act cta gat tct tca ctt cag cag act gag tta atg Leu Pro Lys Glu Thr Leu Asp Ser Ser Leu Gln Gln Thr Glu Leu Met 807	812	817	822	2680
gac cac aga atg gca act ggt gaa aca aac tca gta tat cat gat gat Asp His Arg Met Ala Thr Gly Glu Thr Asn Ser Val Tyr His Asp Asp 823	828	833	838	2728
gat aac tcg gtt ttg agc att gac ctt aat cac ctg aga cct att cca Asp Asn Ser Val Leu Ser Ile Asp Leu Asn His Leu Arg Pro Ile Pro 839	844	849	854	2776
gaa gcc atc agt cct ctg aat agt cca gtg aga cct gta gca aaa gtt Glu Ala Ile Ser Pro Leu Asn Ser Pro Val Arg Pro Val Ala Lys Val 855	860	865	870	2824
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Cys Thr Glu Ala Asp	Thr Cys Lys Asn Ser	Pro Leu Asp Glu Leu Glu		
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gaa gga gaa att aga	agt gat agt gaa aca tct	aaa cca caa gaa agt		3064
Glu Gly Glu Ile Arg	Ser Asp Ser Glu Thr Ser	Lys Pro Gln Glu Ser		
935	940	945	950	
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Phe Glu Lys Asn Ser	Lys Arg Arg Val Ser	Ala Asp Val Arg Lys Ser		
951	956	961	966	
aag act atc cca cga	cgt ggg aaa agt act	gtg tgt tta gat aaa gac		3160
Lys Thr Ile Pro Arg	Arg Gly Lys Ser Thr	Val Cys Leu Asp Lys Asp		
967	972	977	982	
agt agg aaa aca cat	gta aga atc cat cag	acc aat aac aaa tgg aat		3208
Ser Arg Lys Thr His	Val Arg Ile His Gln	Thr Asn Asn Lys Trp Asn		
983	988	993	998	
aaa aga cct gat aaa	tct agt aga tct tca	aaa aca gag aag aaa gat		3256
Lys Arg Pro Asp Lys	Ser Ser Arg Ser Ser	Lys Thr Glu Lys Lys Asp		
999	1004	1009	1014	
aaa gtg atg agc act	tcc agc ttg gaa aaa	ata gtt cca att att gct		3304
Lys Val Met Ser Thr	Ser Ser Leu Glu Lys	Ile Val Pro Ile Ile Ala		
1015	1020	1025	1030	
gta ccc tct tct gaa	caa gag atc atg cac	atg tta cga atg ata aga		3352
Val Pro Ser Ser Glu	Gln Glu Ile Met His	Met Leu Arg Met Ile Arg		
1031	1036	1041	1046	
aaa cat gta aga aaa	aat tat atg aaa ttc	aag gca aaa ttt tca tta		3400
Lys His Val Arg Lys	Asn Tyr Met Lys Phe	Lys Ala Lys Phe Ser Leu		
1047	1052	1057	1062	
ata caa ttt cac aga	att att gag tca gca	att ttg agt ttt aca tct		3448
Ile Gln Phe His Arg	Ile Ile Glu Ser Ala	Ile Leu Ser Phe Thr Ser		
1063	1068	1073	1078	
tta att aaa cat ctc	aac tta cac aaa atc	tct aag tca gtg act acc		3496
Leu Ile Lys His Leu	Asn Leu His Lys Ile	Ser Lys Ser Val Thr Thr		
1079	1084	1089	1094	
tta cag aag aat ctc	tgt gat att ata gag	tct aaa ctt aag caa gtt		3544
Leu Gln Lys Asn Leu	Cys Asp Ile Ile Glu	Ser Lys Leu Lys Gln Val		
1095	1100	1105	1110	
aaa aag aat ggc ata	gtt gat cgt tta ttt	gaa cag caa cta cca gat		3592
Lys Lys Asn Gly Ile	Val Asp Arg Leu Phe	Glu Gln Gln Leu Pro Asp		
1111	1116	1121	1126	
atg aaa aaa aaa ttg	tgg aag ttt gta gat	gac caa ctt gat tat ttg		3640
Met Lys Lys Lys Leu	Trp Lys Phe Val Asp	Asp Gln Leu Asp Tyr Leu		
1127	1132	1137	1142	

ttt gca aag ctt aag aaa atc tta gta tgt gat tcc aaa agc ttt gga	3688
Phe Ala Lys Leu Lys Lys Ile Leu Val Cys Asp Ser Lys Ser Phe Gly	
1143 1148 1153 1158	
aga gat agt gat gaa ggc aaa ctt gaa aaa aca agt aaa cag aat gca	3736
Arg Asp Ser Asp Glu Gly Lys Leu Glu Lys Thr Ser Lys Gln Asn Ala	
1159 1164 1169 1174	
cag tat tca aat agt cag aaa agg agt gtg gac aac tcc aac aga gaa	3784
Gln Tyr Ser Asn Ser Gln Lys Arg Ser Val Asp Asn Ser Asn Arg Glu	
1175 1180 1185 1190	
ttg ctg aaa gaa aaa tta tca aaa tca gaa gac cct gtt cat tat aag	3832
Leu Leu Lys Glu Lys Leu Ser Lys Ser Glu Asp Pro Val His Tyr Lys	
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Ser Leu Val Gly Cys Lys Lys Ser Glu Glu Asn Tyr Gln Asp Gln Asn	
1207 1212 1217 1222	
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Asn Ser Ser Ile Asn Thr Val Lys His Asp Ile Lys Lys Asn Phe Asn	
1223 1228 1233 1238	
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Ile Cys Phe Asp Asn Ile Lys Asn Ser Gln Ser Glu Glu Arg Ser Leu	
1239 1244 1249 1254	
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Glu Val His Cys Pro Ser Thr Pro Lys Ser Glu Lys Asn Glu Gly Ser	
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agc ata gag gat gca cag aca tcc cag cat gca act ttg aag cca gaa	4072
Ser Ile Glu Asp Ala Gln Thr Ser Gln His Ala Thr Leu Lys Pro Glu	
1271 1276 1281 1286	
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Arg Ser Phe Glu Ile Leu Thr Glu Gln Gln Ala Ser Ser Leu Thr Phe	
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Gln Gly Ser Asp Leu Leu Asp Ser Ser Val Asn Cys Thr Glu Lys Ser	
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Glu Trp Glu Leu Lys Thr Pro Glu Lys Gln Leu Leu Glu Thr Leu Lys	
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tgc gag tct ata cca gct tgt aca aca gaa gag cta gtt tca ggg gtg	4312
Cys Glu Ser Ile Pro Ala Cys Thr Thr Glu Glu Leu Val Ser Gly Val	
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Ala Ser Pro Cys Pro Lys Met Ile Ser Asp Asp Asn Trp Ser Leu Leu	
1367 1372 1377 1382	
tca tct gaa aaa ggt cca tct ctg tct tca ggg ctt tca ttg ccg gtt	4408
Ser Ser Glu Lys Gly Pro Ser Leu Ser Ser Gly Leu Ser Leu Pro Val	
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His Pro Asp Val Leu Asp Glu Ser Cys Met Phe Glu Val Ser Thr Asn	
1399 1404 1409 1414	
cta cct tta agt aaa gat aat gtg tgt agt gta gaa aag agc aag ccc	4504
Leu Pro Leu Ser Lys Asp Asn Val Cys Ser Val Glu Lys Ser Lys Pro	
1415 1420 1425 1430	
tgc gtt tct tcc ata ctt ctt gaa gat cta gca gtc tct tta aca gta	4552
Cys Val Ser Ser Ile Leu Leu Glu Asp Leu Ala Val Ser Leu Thr Val	
1431 1436 1441 1446	
cca tcg cct ctg aag tca gat ggt cat ctc agt ttt tta aag cct gat	4600
Pro Ser Pro Leu Lys Ser Asp Gly His Leu Ser Phe Leu Lys Pro Asp	
1447 1452 1457 1462	
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Met Ser Ser Ser Ser Thr Pro Glu Glu Val Ile Ser Ala His Phe Ser	
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gaa gat gcc tta ctt gag gaa gag gat gca tct gag caa gat att cat	4696
Glu Asp Ala Leu Leu Glu Glu Glu Asp Ala Ser Glu Gln Asp Ile His	
1479 1484 1489 1494	
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Leu Ala Leu Glu Ser Asp Asn Ser Ser Ser Lys Ser Ser Cys Ser Ser	
1495 1500 1505 1510	
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Ser Trp Thr Ser Arg Ser Val Ala Pro Gly Phe Gln Tyr His Pro Asn	
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Leu Pro Met His Ala Val Ile Met Glu Lys Ser Asn Asp His Phe Ile	
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Val Lys Ile Arg Arg Ala Thr Pro Ser Thr Ser Ser Gly Leu Lys Gln	
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agt atg atg cct gat gaa tta ttg aca tct ttg ccc aga cat gga aag	4936
Ser Met Met Pro Asp Glu Leu Leu Thr Ser Leu Pro Arg His Gly Lys	
1559 1564 1569 1574	
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Glu Ala Asp Glu Gly Pro Glu Lys Glu Tyr Ile Ser Cys Gln Asn Thr	
1575 1580 1585 1590	
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1815	1820	1825	1830	
aat tct cac aaa aag aga aga aac att tct gat cta aat cat cct cat				5752
Asn Ser His Lys Lys Arg Arg Asn Ile Ser Asp Leu Asn His Pro His				
1831	1836	1841	1846	
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Lys Lys Gln Arg Lys Glu Thr Asp Leu Thr Asn Lys Glu Lys Thr Lys				
1847	1852	1857	1862	
aaa cct acc caa gat tct tgt gag aat act gaa gct cac caa aag aaa				5848
Lys Pro Thr Gln Asp Ser Cys Glu Asn Thr Glu Ala His Gln Lys Lys				
1863	1868	1873	1878	
gcc agt aag aag aag gcc cct cct gtg act aaa gat ccc tca tca tta				5896
Ala Ser Lys Lys Lys Ala Pro Pro Val Thr Lys Asp Pro Ser Ser Leu				
1879	1884	1889	1894	
aag gca acc cca ggg att aag gat tca tca gca gca ctt gcc act tct				5944
Lys Ala Thr Pro Gly Ile Lys Asp Ser Ser Ala Ala Leu Ala Thr Ser				
1895	1900	1905	1910	
aca agt ctt tct gca aaa aat gtt att aaa aag aag gga gaa att atc				5992
Thr Ser Leu Ser Ala Lys Asn Val Ile Lys Lys Lys Gly Glu Ile Ile				
1911	1916	1921	1926	
att tta tgg aca aga aat gat gac cgg gaa att tta ttg gag tgt cag				6040
Ile Leu Trp Thr Arg Asn Asp Asp Arg Glu Ile Leu Leu Glu Cys Gln				
1927	1932	1937	1942	
aaa aga ggg cca tca ttt aaa aca ttt gca tat tta gcc gcc aag ttg				6088
Lys Arg Gly Pro Ser Phe Lys Thr Phe Ala Tyr Leu Ala Ala Lys Leu				
1943	1948	1953	1958	
gat aaa aat cca aat cag gtc tca gaa aga ttc cag cag cta atg aag				6136
Asp Lys Asn Pro Asn Gln Val Ser Glu Arg Phe Gln Gln Leu Met Lys				
1959	1964	1969	1974	
ctc ttt gaa aag tca aaa tgc agg tag ttaat ggttacacta caggagacta				6188
Leu Phe Glu Lys Ser Lys Cys Arg *				
1975	1980			
gtaaaataaaa tgtttgacac tgtagttgtg cagttaatgg cctgttagtc attgaagatg				6248
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Gln Thr Ile Ser Lys Lys Thr Val Arg Ser Ile Gln Glu Ala Pro Val	
170 175 180 185	
agt gaa gat ctt gta atc agg tta cgt cga ccc cct cta aga tac cca	1047
Ser Glu Asp Leu Val Ile Arg Leu Arg Arg Pro Pro Leu Arg Tyr Pro	
186 191 196 201	
aga tat gaa gcc acc agt gtc caa cag aag gtc aat ^g ttc tct gaa gaa	1095
Arg Tyr Glu Ala Thr Ser Val Gln Gln Lys Val Asn Phe Ser Glu Glu	
202 207 212 217	
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Gly Glu Thr Glu Glu Asp Asp Gln Asp Ser Ser His Ser Ser Val Thr	
218 223 228 233	
act gtt aag gcc aga tcc agg gat tct gat gaa tct gga gat aaa acc	1191
Thr Val Lys Ala Arg Ser Arg Asp Ser Asp Glu Ser Gly Asp Lys Thr	
234 239 244 249	
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Thr Arg Ser Ser Ser Gln Tyr Ile Glu Ser Phe Trp Gln Ser Ser Gln	
250 255 260 265	
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Ser Gln Asn Phe Thr Ala His Asp Lys Gln Pro Ser Val Leu Ser Ser	
266 271 276 281	
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Gly Tyr Gln Lys Thr Pro Gln Glu Trp Ala Pro His Thr Ala Arg Ile	
282 287 292 297	
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Arg Thr Arg Met Gln Asn Asp Ser Ile Leu Lys Ser Glu Leu Gly Asn	
298 303 308 313	
cag tca cca tca acc tcc agc cga caa gtg act gga caa ccc caa aat	1431
Gln Ser Pro Ser Thr Ser Ser Arg Gln Val Thr Gly Gln Pro Gln Asn	
314 319 324 329	
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Ala Ser Phe Val Lys Arg Asn Arg Trp Trp Leu Leu Pro Leu Ile Ala	
330 335 340 345	
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Ala Leu Ala Ser Gly Ser Phe Trp Phe Phe Ser Thr Pro Glu Val Glu	
346 351 356 361	
acc act gct gtt caa gag ttc cag aac cag atg aat caa ctt aag aat	1575
Thr Thr Ala Val Gln Glu Phe Gln Asn Gln Met Asn Gln Leu Lys Asn	
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Ile Arg Ile Asp Gly Thr Asp Lys Ala Thr Gln Asp Ser Asp Thr Val	
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Lys Leu Glu Val Asp Gln Glu Leu Ser Asn Gly Phe Lys Asn Gly Gln	
458 463 468 473	
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Asn Ala Ala Val Val His Arg Phe Glu Ser Phe Pro Ala Gly Ser Thr	
474 479 484 489	
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Leu Ile Phe Tyr Lys Tyr Cys Asp His Glu Asn Ala Ala Phe Lys Asp	
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Val Lys Phe Thr Asn Ser Asn Thr Pro Asn Ser Tyr Asn His Met Asp	
538 543 548 553	
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Pro Val Gln Pro Glu Asn Ala Leu Lys Arg Gly Ile Cys Leu *	
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Gly Glu Ser Ala Ser Asp Gly His Ile Ser Cys Pro Lys Pro Ser Ile
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atc ggc aat gct ggt gaa aaa agt ctc tca gaa gat gca aaa aag aag      750
Ile Gly Asn Ala Gly Glu Lys Ser Leu Ser Glu Asp Ala Lys Lys Lys
  24                               29                               34                               39

aag aaa tca aat agg aag gag gat gat gtc atg gcc tca gga act gtc      798
Lys Lys Ser Asn Arg Lys Glu Asp Asp Val Met Ala Ser Gly Thr Val
  40                               45                               50                               55

aaa cga cac cta aaa aca tct gga gaa tgt gaa cga aaa act aag aaa      846
Lys Arg His Leu Lys Thr Ser Gly Glu Cys Glu Arg Lys Thr Lys Lys
  56                               61                               66                               71

tcc ctg gag tta tcc aaa gaa gac ctc atc caa cta ctc agt ata atg      894
Ser Leu Glu Leu Ser Lys Glu Asp Leu Ile Gln Leu Leu Ser Ile Met
  72                               77                               82                               87

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Glu Gly Glu Leu Gln Ala Arg Glu Asp Val Ile His Met Leu Lys Thr	
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gag aaa acc aag cct gag gtt ctg gag gct cat tac ggg tct gcg gag	990
Glu Lys Thr Lys Pro Glu Val Leu Glu Ala His Tyr Gly Ser Ala Glu	
104 109 114 119	
cca gag aaa gtg ctg cgg gtc ctg cac cga gat gcc att ctt gcc cag	1038
Pro Glu Lys Val Leu Arg Val Leu His Arg Asp Ala Ile Leu Ala Gln	
120 125 130 135	
gag aaa tcc ata gga gaa gat gtc tat gag aaa ccg att tca gag ctg	1086
Glu Lys Ser Ile Gly Glu Asp Val Tyr Glu Lys Pro Ile Ser Glu Leu	
136 141 146 151	
gac aga ctt gag gaa aaa cag aaa gaa acc tac cgg cgc atg cta gag	1134
Asp Arg Leu Glu Glu Lys Gln Lys Glu Thr Tyr Arg Arg Met Leu Glu	
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Gln Leu Leu Leu Ala Glu Lys Cys His Arg Arg Thr Val Tyr Glu Leu	
168 173 178 183	
gag aac gag aag cat aaa cac act gac tac atg aac aag agc gac gac	1230
Glu Asn Glu Lys His Lys His Thr Asp Tyr Met Asn Lys Ser Asp Asp	
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ttc acc aac ctg ctg gag cag gag cgg gag agg tta aaa aag ctc ctt	1278
Phe Thr Asn Leu Leu Glu Gln Glu Arg Glu Arg Leu Lys Lys Leu Leu	
200 205 210 215	
gaa caa gaa aag gct tat caa gcc cgc aaa gaa aag gaa aat gct aaa	1326
Glu Gln Glu Lys Ala Tyr Gln Ala Arg Lys Glu Lys Glu Asn Ala Lys	
216 221 226 231	
cga ctc aat aaa cta aga gat gag ctt gtt aaa ctc aaa tcc ttt gca	1374
Arg Leu Asn Lys Leu Arg Asp Glu Leu Val Lys Leu Lys Ser Phe Ala	
232 237 242 247	
ctc atg ctg gtg gat gaa aga caa atg cac att gaa caa ctt ggc ctg	1422
Leu Met Leu Val Asp Glu Arg Gln Met His Ile Glu Gln Leu Gly Leu	
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Gln Ser Gln Lys Val Gln Asp Leu Thr Gln Lys Leu Arg Glu Glu Glu	
264 269 274 279	
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Leu Leu Lys Leu Glu Val Asp Phe Glu His Lys Ala Ser Arg Phe Ser	
296 301 306 311	

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Gln Glu His Glu Glu Met Asn Ala Lys Leu Ala Asn Gln Glu Ser His	
312 317 322 327	
aat agg caa ctt aga ctc aag ctg gtt ggc tta acc caa aga atc gag	1662
Asn Arg Gln Leu Arg Leu Lys Leu Val Gly Leu Thr Gln Arg Ile Glu	
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Glu Leu Glu Glu Thr Asn Lys Asn Leu Gln Lys Ala Glu Glu Glu Leu	
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Gln Glu Leu Arg Asp Lys Ile Ala Lys Gly Glu Cys Gly Asn Ser Ser	
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392 397 402 407	
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Arg Lys Lys Leu Gln Glu Glu Glu His His Ser Lys Glu Leu Arg Leu	
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Glu Val Glu Lys Leu Gln Lys Arg Met Ser Glu Leu Glu Lys Leu Glu	
424 429 434 439	
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Glu Ala Phe Ser Lys Ser Lys Ser Glu Cys Thr Gln Leu His Leu Asn	
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456 461 466 471	
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Val Val Lys Ser Arg Val Lys Glu Leu Glu Cys Ser Glu Ser Arg Leu	
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Glu Lys Ala Glu Leu Ser Leu Lys Asp Asp Leu Thr Lys Leu Lys Ser	
488 493 498 503	
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Phe Thr Val Met Leu Val Asp Glu Arg Lys Asn Met Met Glu Lys Ile	
504 509 514 519	
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Lys Gln Glu Glu Arg Lys Val Asp Gly Leu Asn Lys Asn Phe Lys Val	
520 525 530 535	
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Glu Lys Ser Ser Glu Leu Ser Cys Ser Val Asp Leu Leu Lys Lys Arg	
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Leu Asp Gly Ile Glu Glu Val Glu Arg Glu Ile Thr Arg Gly Arg Ser	
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Arg Lys Gly Ser Glu Leu Thr Cys Pro Glu Asp Asn Lys Ile Lys Glu	
616 621 626 631	
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Leu Thr Leu Glu Ile Glu Arg Leu Lys Lys Arg Leu Gln Gln Leu Glu	
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Val Val Glu Gly Asp Leu Met Lys Thr Glu Asp Glu Tyr Asp Gln Leu	
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Glu Gln Lys Phe Arg Thr Glu Gln Asp Lys Ala Asn Phe Leu Ser Gln	
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caa cta gag gag atc aag cac caa att gcc aag aat aaa gca ata gag	2718
Gln Leu Glu Glu Ile Lys His Gln Ile Ala Lys Asn Lys Ala Ile Glu	
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Lys Gly Glu Val Val Ser Gln Glu Ala Glu Leu Arg His Arg Phe Arg	
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Leu Glu Glu Ala Lys Ser Arg Asp Leu Lys Ala Glu Val Gln Ala Leu	
712 717 722 727	
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744 749 754 759	
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Asn Lys Asn Lys Asn Met Gly Gln Glu Val Leu Asn Leu Thr Lys Glu	

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ttg gag ctt tcc aag cgc tac agc aga gct ctt agg ccc agt gtg aat				3006
Leu Glu Leu Ser Lys Arg Tyr Ser Arg Ala Leu Arg Pro Ser Val Asn				
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gga aga aga atg gtg gat gtt cct gtg acg tca act gga gtc caa act				3054
Gly Arg Arg Met Val Asp Val Pro Val Thr Ser Thr Gly Val Gln Thr				
792	797	802	807	
gat gca gtc agc ggt gaa gca gca gag gaa gaa acg cca gct gta ttc				3102
Asp Ala Val Ser Gly Glu Ala Ala Glu Glu Glu Thr Pro Ala Val Phe				
808	813	818	823	
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Ile Arg Lys Ser Phe Gln Glu Glu Asn His Ile Met Ser Asn Leu Arg				
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Gln Val Gly Leu Lys Lys Pro Val Glu Arg Ser Ser Val Leu Asp Arg				
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Tyr Pro Pro Ala Ala Asn Glu Leu Thr Met Arg Lys Ser Trp Ile Pro				
856	861	866	871	
tgg atg aga aag agg gaa aac ggc ccc tcc atc act cag gag aaa ggg				3294
Trp Met Arg Lys Arg Glu Asn Gly Pro Ser Ile Thr Gln Glu Lys Gly				
872	877	882	887	
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Pro Arg Thr Asn Ser Ser Pro Gly His Pro Gly Glu Val Val Leu Ser				
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Phe Ser Ser Thr Thr Val Ile Pro Thr Leu Gly Asn Gln Lys Pro Arg				
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ata acc att att cca tca cca aac gtt atg cct caa aaa caa aaa agt				3534
Ile Thr Ile Ile Pro Ser Pro Asn Val Met Pro Gln Lys Gln Lys Ser				
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gga gat act act ctt ggc cca gaa cga gcc atg tcc cca gtc aca att				3582
Gly Asp Thr Thr Leu Gly Pro Glu Arg Ala Met Ser Pro Val Thr Ile				
968	973	978	983	
act aca ttt tcc aga gag aag act cca gaa agt gga aga ggc gca ttt				3630
Thr Thr Phe Ser Arg Glu Lys Thr Pro Glu Ser Gly Arg Gly Ala Phe				
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Ala Ala Pro Ala Glu Ile Ala Val Ser Pro Glu Ser Gln Glu Met Pro	
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Met Gly Arg Thr Ile Leu Lys Val Thr Pro Glu Lys Gln Thr Val Pro	
1032 1037 1042 1047	
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Thr Pro Val Arg Lys Tyr Asn Ser Asn Ala Asn Ile Ile Thr Thr Glu	
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gac aat aaa att cac att cac tta ggg tct cag ttt aaa cgg tcc cct	3870
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Ser Val Ser Gly Gln Asp Gly Ser Ser Gln Arg Pro Thr Pro Thr Arg	
1144 1149 1154 1159	
att cct atg tca aaa ggt atg aaa gca gga aag cca gta gtg gca gcc	4158
Ile Pro Met Ser Lys Gly Met Lys Ala Gly Lys Pro Val Val Ala Ala	
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cca gga gca gga aat ctg acc aaa ttc gag cct cga gct gag act cag	4206
Pro Gly Ala Gly Asn Leu Thr Lys Phe Glu Pro Arg Ala Glu Thr Gln	
1176 1181 1186 1191	
tct atg aaa ata gag ctg aag aaa tct gca gcc agc agc acc acc tct	4254
Ser Met Lys Ile Glu Leu Lys Lys Ser Ala Ala Ser Ser Thr Thr Ser	
1192 1197 1202 1207	
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Leu Gly Gly Gly Lys Gly *	
1208 1213	

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 Met Phe Pro Val Phe Ser
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 Gly Cys Phe Gln Glu Leu Gln Glu Lys Asn Lys Ser Leu Glu Leu Val
 7 12 17 22
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 Ser Phe Glu Glu Val Ala Val His Phe Thr Trp Glu Glu Trp Gln Asp
 23 28 33 38
 ctg gat gac gct cag agg acc ctg tac agg gac gtg atg ctg gag acc 379
 Leu Asp Asp Ala Gln Arg Thr Leu Tyr Arg Asp Val Met Leu Glu Thr
 39 44 49 54
 tac agc agc ctg gta tca ttg ggg cat tgc att acc aaa cct gag atg 427
 Tyr Ser Ser Leu Val Ser Leu Gly His Cys Ile Thr Lys Pro Glu Met

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Ile Phe Lys Leu Glu Gln Gly Ala Glu Pro Trp Ile Val Glu Glu Thr				
71	76	81	86	
cta aac ctg aga ctt tca ggt gga agc aag aag caa gtt ttc tca ggt				523
Leu Asn Leu Arg Leu Ser Gly Gly Ser Lys Lys Gln Val Phe Ser Gly				
87	92	97	102	
att tgc cac aag agc ctg gtg gag ctc caa gag gtt cat ttg gtc tga				571
Ile Cys His Lys Ser Leu Val Glu Leu Gln Glu Val His Leu Val *				
103	108	113	118	
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atg tcc aac ccc ttc ctg aag caa gtc ttc aac aag gac aag aca ttc	285
Met Ser Asn Pro Phe Leu Lys Gln Val Phe Asn Lys Asp Lys Thr Phe	
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Arg Pro Lys Arg Lys Phe Glu Pro Gly Thr Gln Arg Phe Glu Leu His	
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Lys Lys Ala Gln Ala Ser Leu Asn Ala Gly Leu Asp Leu Arg Leu Ala	
33 38 43 48	
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Val Gln Leu Pro Pro Gly Glu Asp Leu Asn Asp Trp Val Ala Val His	
49 54 59 64	
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Val	Val	Asp	Phe	Phe	Asn	Arg	Val	Asn	Leu	Ile	Tyr	Gly	Thr	Ile	Ser		
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Asp	Gly	Cys	Thr	Glu	Gln	Ser	Cys	Pro	Val	Met	Ser	Gly	Gly	Pro	Lys		
81					86					91					96		
tat	gag	tac	cgc	tgg	cag	gat	gag	cat	aag	ttc	cgg	aag	ccc	acg	gca	573	
Tyr	Glu	Tyr	Arg	Trp	Gln	Asp	Glu	His	Lys	Phe	Arg	Lys	Pro	Thr	Ala		
97					102					107					112		
ctc	tcc	gcg	ccc	agg	tac	atg	gac	ctg	ctg	atg	gac	tgg	atc	gag	gcg	621	
Leu	Ser	Ala	Pro	Arg	Tyr	Met	Asp	Leu	Leu	Met	Asp	Trp	Ile	Glu	Ala		
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Gln	Ile	Asn	Asn	Glu	Asp	Leu	Phe	Pro	Thr	Asn	Val	Gly	Thr	Pro	Phe		
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Arg	Val	Phe	Val	His	Val	Tyr	Ile	His	His	Phe	Asp	Arg	Ile	Ala	Gln		
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Met	Gly	Ser	Glu	Ala	His	Val	Asn	Thr	Cys	Tyr	Lys	His	Phe	Tyr	Tyr		
177					182					187					192		
ttc	gtc	aag	gag	ttc	ggc	ctc	atc	gac	acc	aag	gag	ctg	gag	cca	ctg	861	
Phe	Val	Lys	Glu	Phe	Gly	Leu	Ile	Asp	Thr	Lys	Glu	Leu	Glu	Pro	Leu		
193					198					203					208		
aaa	gaa	atg	acc	gcc	cgg	atg	tgc	cac	tga	g	agccccgcgg	gtctcccggt				912	
Lys	Glu	Met	Thr	Ala	Arg	Met	Cys	His	*								
209					214												
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tgaatagtag gcacgtgaga ggatatatta aggctgcatt attatgtttg cttttaccag 240
tga atg aat tat gag ctt aat ttc aaa cgt gaa atg cct aac ata aaa 288
Met Asn Tyr Glu Leu Asn Phe Lys Arg Glu Met Pro Asn Ile Lys
1 5 10
agt ctt gga ttg aca aat ctg aac ttt ctg tta aaa aga tta agt tct 336
Ser Leu Gly Leu Thr Asn Leu Asn Phe Leu Leu Lys Arg Leu Ser Ser
16 21 26 31
gta ctt cct tta att aca gat tat gtc tac ttt gag aat tcc tcc agc 384
Val Leu Pro Leu Ile Thr Asp Tyr Val Tyr Phe Glu Asn Ser Ser Ser
32 37 42 47
aac cca tac cta ata aga agg ata gaa gaa ctc aac aag act gca agt 432
Asn Pro Tyr Leu Ile Arg Arg Ile Glu Glu Leu Asn Lys Thr Ala Ser
48 53 58 63
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Gly Asn Val Glu Ala Lys Val Val Cys Phe Tyr Arg Arg Arg Asp Ile
64 69 74 79
tcc aac aca ctt ata atg ctc gca gat aag cat gct aaa gaa att gag 528
Ser Asn Thr Leu Ile Met Leu Ala Asp Lys His Ala Lys Glu Ile Glu
80 85 90 95

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gag aca gaa tca gta ttg tca tat ctt gat aag gag gat acc ttc ttc Glu Thr Glu Ser Val Leu Ser Tyr Leu Asp Lys Glu Asp Thr Phe Phe 144 149 154 159	720
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gct agc tta ttt gaa gag gca ctg gaa aaa tat ggc aaa gac ttc/aat Ala Ser Leu Phe Glu Glu Ala Leu Glu Lys Tyr Gly Lys Asp Phe Asn 304 309 314 319	1200

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cca acc tac aaa cca aat ccc aac caa ata tcc act agt aat ggg aag Pro Thr Tyr Lys Pro Asn Pro Asn Gln Ile Ser Thr Ser Asn Gly Lys 368 373 378 383	1392
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aca ata ttc ctc agt aaa tct cag aca gac gtg aga gaa aaa cgc aag Thr Ile Phe Leu Ser Lys Ser Gln Thr Asp Val Arg Glu Lys Arg Lys 67 72 77 82	417
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Leu Glu Pro Leu Ser Arg Glu Arg Ala His Lys Leu Glu Ala Ile Ser	
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Arg Leu Cys Glu Asp Lys Tyr Lys Asp Leu Arg Arg Ser Ala Arg Lys	
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Arg Ser Ala Ser Ala Asp Asn Leu Thr Leu Pro Arg Trp Ser Pro Ala	
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Ile Ile Ser *	
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Ala Val Leu Val Leu Leu Leu Trp Gly Ala Pro Trp Thr His Gly Arg
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cgg agc aac gtt cgc gtc atc acg gac gag aac tgg aga gaa ctg ctg      387
Arg Ser Asn Val Arg Val Ile Thr Asp Glu Asn Trp Arg Glu Leu Leu
 28                      33                      38                      43

gaa gga gac tgg atg ata gaa ttt tat gcc ccg tgg tgc cct gct tgt      435
Glu Gly Asp Trp Met Ile Glu Phe Tyr Ala Pro Trp Cys Pro Ala Cys
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caa aat ctt caa ccg gaa tgg gaa agt ttt gct gaa tgg gga gaa gat      483
Gln Asn Leu Gln Pro Glu Trp Glu Ser Phe Ala Glu Trp Gly Glu Asp
 60                      65                      70                      75

ctt gag gtt aat att gcg aaa gta gat gtc aca gag cag cca gga ctg      531
Leu Glu Val Asn Ile Ala Lys Val Asp Val Thr Glu Gln Pro Gly Leu
 76                      81                      86                      91

agt gga cgg ttt atc ata act gct ctt cct act att tat cat tgt aaa      579
Ser Gly Arg Phe Ile Ile Thr Ala Leu Pro Thr Ile Tyr His Cys Lys
 92                      97                      102                      107

gat ggt gaa ttt agg cgc tat cag ggt cca agg act aag aag gac ttc      627
Asp Gly Glu Phe Arg Arg Tyr Gln Gly Pro Arg Thr Lys Lys Asp Phe
108                      113                      118                      123

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Ile Asn Phe Ile Ser Asp Lys Glu Trp Lys Ser Ile Glu Pro Val Ser
124                      129                      134                      139

tca tgg ttt ggt cca ggt tct gtt ctg atg agt agt atg tca gca ctc      723
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Thr Leu Phe Ser Gly Leu Leu Leu Gly Leu Cys Met Ile Phe Val Ala	
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Asp Cys Leu Cys Pro Ser Lys Arg Arg Arg Pro Gln Pro Tyr Pro Tyr	
204 209 214 219	
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Pro Ser Lys Lys Leu Leu Ser Glu Ser Ala Gln Pro Leu Lys Lys Val	
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Gln Arg Ser Leu Gly Pro Ser Leu Ala Thr Asp Lys Ser *	
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Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys	
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ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct	149
Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala	
23 28 33 38	

gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg	197
Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu	
39 44 49 54	
ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg	245
Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu	
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Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu	
71 76 81 86	
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Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys	
87 92 97 102	
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Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu	
103 108 113 118	
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Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe	
119 124 129 134	
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151 156 161 166	
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Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu	
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183 188 193 198	
aag gag gat ttc agc agc atg agc cct cag ttg tta tac aaa atg atc	677
Lys Glu Asp Phe Ser Ser Met Ser Pro Gln Leu Leu Tyr Lys Met Ile	
199 204 209 214	
aaa tcc aag aca gag tac ccg cta cat aaa gcc atc aaa gtg gag aga	725
Lys Ser Lys Thr Glu Tyr Pro Leu His Lys Ala Ile Lys Val Glu Arg	
215 220 225 230	
gaa gac gtg gtc tcc ctg tat ctg att gaa atg gat tcc cag ctc cct	773
Glu Asp Val Val Ser Leu Tyr Leu Ile Glu Met Asp Ser Gln Leu Pro	
231 236 241 246	
ggg aag ctg aat gaa gcg gac cat aac ggg gac ctg gca tta gac cta	821
Gly Lys Leu Asn Glu Ala Asp His Asn Gly Asp Leu Ala Leu Asp Leu	
247 252 257 262	

gcc ctc tca cga cga ctg gag aat att gcc acc acg ctg gtt agt cac	869
Ala Leu Ser Arg Arg Leu Glu Asn Ile Ala Thr Thr Leu Val Ser His	
263 268 273 278	
aaa gct gat gtg gac atg gtg gac aag agt ggc tgg agc ttg tta cac	917
Lys Ala Asp Val Asp Met Val Asp Lys Ser Gly Trp Ser Leu Leu His	
279 284 289 294	
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Lys Gly Ile Gln Arg Gly Asp Leu Phe Ala Ala Thr Phe Leu Ile Lys	
295 300 305 310	
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Asn Gly Ala Phe Val Asn Ala Ala Thr Leu Gly Ala Gln Glu Thr Pro	
311 316 321 326	
ctg cac ctt gtg gcc ttg tac agt tca aag aaa cac tca gca gat gtg	1061
Leu His Leu Val Ala Leu Tyr Ser Ser Lys Lys His Ser Ala Asp Val	
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Ile Met Ala Gly Asn Glu Tyr Val Phe Ser Gln Leu Leu Gln Cys Lys	
375 380 385 390	
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Gln Leu Asp Leu Glu Leu Lys Asp His Glu Gly Ser Thr Ala Leu Trp	
391 396 401 406	
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423 428 433 438	
ttt gca gcc aga ctc atc cag cgc ggc agc cac aca gac gca cct gac	1397
Phe Ala Ala Arg Leu Ile Gln Arg Gly Ser His Thr Asp Ala Pro Asp	
439 444 449 454	
acg gcg aca gga aac tgt tta cta cag cgg gca gct gga gca gga aac	1445
Thr Ala Thr Gly Asn Cys Leu Leu Gln Arg Ala Ala Gly Ala Gly Asn	
455 460 465 470	
gag gca gca gct ctt ttc ctg gca acc aac ggt gcc cat gtc aac cac	1493
Glu Ala Ala Ala Leu Phe Leu Ala Thr Asn Gly Ala His Val Asn His	
471 476 481 486	
aga aac aag tgg gga gaa acc ccg ttg cac aca gcg tgt cgg cat ggc	1541

Arg	Asn	Lys	Trp	Gly	Glu	Thr	Pro	Leu	His	Thr	Ala	Cys	Arg	His	Gly	
487					492					497					502	
ctg	gcc	aac	ctc	aca	gca	gag	ctc	ctg	cag	caa	ggc	gcc	aac	cca	aac	1589
Leu	Ala	Asn	Leu	Thr	Ala	Glu	Leu	Leu	Gln	Gln	Gly	Ala	Asn	Pro	Asn	
503					508					513					518	
ctg	cag	acg	gag	gaa	gct	ctg	cct	ctg	cca	aag	gag	gcc	gca	tcc	ctg	1637
Leu	Gln	Thr	Glu	Glu	Ala	Leu	Pro	Leu	Pro	Lys	Glu	Ala	Ala	Ser	Leu	
519					524					529					534	
acc	agc	ttg	gcg	gac	agc	gtc	cat	ctg	cag	acg	cca	ctg	cac	atg	gcg	1685
Thr	Ser	Leu	Ala	Asp	Ser	Val	His	Leu	Gln	Thr	Pro	Leu	His	Met	Ala	
535					540					545					550	
atc	gcc	tat	aac	cat	ccg	gat	gtg	gtg	tct	gtc	atc	ctg	gag	cag	aaa	1733
Ile	Ala	Tyr	Asn	His	Pro	Asp	Val	Val	Ser	Val	Ile	Leu	Glu	Gln	Lys	
551					556					561					566	
gcc	aat	gct	ctt	cat	gcc	acc	aac	aac	ttg	cag	atc	att	ccg	gac	ttc	1781
Ala	Asn	Ala	Leu	His	Ala	Thr	Asn	Asn	Leu	Gln	Ile	Ile	Pro	Asp	Phe	
567					572					577					582	
agc	ctc	aaa	gat	tcc	cga	gac	cag	act	gtg	ctg	ggc	ctg	gca	tta	tgg	1829
Ser	Leu	Lys	Asp	Ser	Arg	Asp	Gln	Thr	Val	Leu	Gly	Leu	Ala	Leu	Trp	
583					588					593					598	
act	ggc	atg	cac	acg	atc	gca	gcc	cag	ctg	ctg	ggc	tct	gga	gcc	gcc	1877
Thr	Gly	Met	His	Thr	Ile	Ala	Ala	Gln	Leu	Leu	Gly	Ser	Gly	Ala	Ala	
599					604					609					614	
atc	aat	gac	acc	atg	tcg	gat	ggg	cag	acg	cta	ctg	cac	atg	gcc	ata	1925
Ile	Asn	Asp	Thr	Met	Ser	Asp	Gly	Gln	Thr	Leu	Leu	His	Met	Ala	Ile	
615					620					625					630	
cag	cgg	cag	gac	agc	aag	agc	gca	ctc	ttc	ctg	ctg	gag	cac	cag	gca	1973
Gln	Arg	Gln	Asp	Ser	Lys	Ser	Ala	Leu	Phe	Leu	Leu	Glu	His	Gln	Ala	
631					636					641					646	
gat	ata	aat	gtc	agc	agg	act	cag	gac	ggg	gag	aca	gcc	ctc	cag	ctg	2021
Asp	Ile	Asn	Val	Ser	Arg	Thr	Gln	Asp	Gly	Glu	Thr	Ala	Leu	Gln	Leu	
647					652					657					662	
gcc	atc	aga	aac	cag	ctt	cca	ctc	gta	gtt	gat	gcc	ata	tgc	acc	cga	2069
Ala	Ile	Arg	Asn	Gln	Leu	Pro	Leu	Val	Val	Asp	Ala	Ile	Cys	Thr	Arg	
663					668					673					678	
gga	gct	gac	atg	tct	gtg	cca	gat	gag	aag	ggg	aac	ccc	ccg	ctg	tgg	2117
Gly	Ala	Asp	Met	Ser	Val	Pro	Asp	Glu	Lys	Gly	Asn	Pro	Pro	Leu	Trp	
679					684					689					694	
ctt	gca															

711					716					721					726		
cag	acg	ctc	ctg	cac	aga	gcc	att	gat	gaa	aac	aac	gag	ccc	acc	gcc	2261	
Gln	Thr	Leu	Leu	His	Arg	Ala	Ile	Asp	Glu	Asn	Asn	Glu	Pro	Thr	Ala		
727					732					737					742		
tgc	ttt	ctt	att	cgc	agt	ggc	tgt	gac	gtg	aac	agt	ccc	aga	caa	cca	2309	
Cys	Phe	Leu	Ile	Arg	Ser	Gly	Cys	Asp	Val	Asn	Ser	Pro	Arg	Gln	Pro		
743					748					753					758		
ggc	gcc	aat	gga	gaa	gga	gag	gaa	gag	gct	aga	gat	ggg	cag	acc	cct	2357	
Gly	Ala	Asn	Gly	Glu	Gly	Glu	Glu	Glu	Ala	Arg	Asp	Gly	Gln	Thr	Pro		
759					764					769					774		
ttg	cat	ttg	gca	gcc	tct	tgg	ggg	ctg	gaa	gag	aca	gta	cag	tgt	ctt	2405	
Leu	His	Leu	Ala	Ala	Ser	Trp	Gly	Leu	Glu	Glu	Thr	Val	Gln	Cys	Leu		
775					780					785					790		
ctg	gag	ttt	ggt	gcc	aac	gtg	aac	gca	cag	gat	gca	gaa	gga	aga	acc	2453	
Leu	Glu	Phe	Gly	Ala	Asn	Val	Asn	Ala	Gln	Asp	Ala	Glu	Gly	Arg	Thr		
791					796					801					806		
ccc	atc	cac	gtg	gcc	atc	agc	agc	caa	cac	ggt	gtc	atc	att	cag	ctg	2501	
Pro	Ile	His	Val	Ala	Ile	Ser	Ser	Gln	His	Gly	Val	Ile	Ile	Gln	Leu		
807					812					817					822		
ttg	gtt	tct	cac	ccc	gat	atc	cat	ttg	aat	gta	cgg	gac	aga	caa	ggg	2549	
Leu	Val	Ser	His	Pro	Asp	Ile	His	Leu	Asn	Val	Arg	Asp	Arg	Gln	Gly		
823					828					833					838		
ctg	acc	ccg	ttt	gcc	tgt	gcc	atg	act	ttc	aag	aac	aac	aag	tca	gcc	2597	
Leu	Thr	Pro	Phe	Ala	Cys	Ala	Met	Thr	Phe	Lys	Asn	Asn	Lys	Ser	Ala		
839					844					849					854		
gag	gcc	att	ctc	aaa	cga	gag	tca	ggg	gct	gct	gag	cag	gtg	gat	aac	2645	
Glu	Ala	Ile	Leu	Lys	Arg	Glu	Ser	Gly	Ala	Ala	Glu	Gln	Val	Asp	Asn		
855					860					865					870		
aag	ggc	cgg	aat	ttc	ctt	cat	gtg	gca	gtt	cag	aac	tct	gat	att	gaa	2693	
Lys	Gly	Arg	Asn	Phe	Leu	His	Val	Ala	Val	Gln	Asn	Ser	Asp	Ile	Glu		
871					876					881					886		
agt	gtg	ctg	ttc	ctg	atc	agt	gtc	cac	gct	aat	gtg	aat	tca	aga	gtc	2741	
Ser	Val	Leu	Phe	Leu	Ile	Ser	Val	His	Ala	Asn	Val	Asn	Ser	Arg	Val		
887					892					897					902		
cag	gat	gcc	tcc	aag	ttg	acc	ccc	ctg	cac	ctc	gct	gtc	caa	gca	ggc	2789	
Gln	Asp	Ala	Ser	Lys	Leu	Thr	Pro	Leu	His	Leu	Ala	Val	Gln	Ala	Gly		
903					908					913					918		
tca	gaa	att	att	gtc	cgc	aat	ttg	ctt	ctt	gcg	gga	gcc	aaa	gtg	aac	2837	
Ser	Glu	Ile	Ile	Val	Arg	Asn	Leu	Leu	Leu	Ala	Gly	Ala	Lys	Val	Asn		
919					924					929					934		
gaa	tta	act	aag	cat	cgc	cag	act	gcc	ctc	cat	ctt	gct	gcc	cag	cag	2885	
Glu	Leu	Thr	Lys	His	Arg	Gln	Thr	Ala	Leu	His	Leu	Ala	Ala	Gln	Gln		
935					940					945					950		

gac ctg ccc acc atc tgc tca gtc ctc cta gag aat ggc gtg gac ttt	2933
Asp Leu Pro Thr Ile Cys Ser Val Leu Leu Glu Asn Gly Val Asp Phe	
951 956 961 966	
gct gcc gtg gat gag aat gga aac aat gct ctt cat ctt gct gtc atg	2981
Ala Ala Val Asp Glu Asn Gly Asn Asn Ala Leu His Leu Ala Val Met	
967 972 977 982	
cac ggc cgg ctc aac aac atc cgg gtt ctc ctg aca gag tgc aca gtg	3029
His Gly Arg Leu Asn Asn Ile Arg Val Leu Leu Thr Glu Cys Thr Val	
983 988 993 998	
gac gcc gaa gcc ttt aat ctc aga ggc cag tca cca ^h ctg cac att ttg	3077
Asp Ala Glu Ala Phe Asn Leu Arg Gly Gln Ser Pro Leu His Ile Leu	
999 1004 1009 1014	
gga caa tat ggc aag gag aat gca gcg gcc atc ttt gat ctc ttc cta	3125
Gly Gln Tyr Gly Lys Glu Asn Ala Ala Ala Ile Phe Asp Leu Phe Leu	
1015 1020 1025 1030	
gaa tgc atg ccg ggg tat cct ctg gac aag ccg gat gca gac ggc agc	3173
Glu Cys Met Pro Gly Tyr Pro Leu Asp Lys Pro Asp Ala Asp Gly Ser	
1031 1036 1041 1046	
acg gtg ctg ctc ctg gca tac atg aaa ggg aac gcc aac ttg tgc cgc	3221
Thr Val Leu Leu Leu Ala Tyr Met Lys Gly Asn Ala Asn Leu Cys Arg	
1047 1052 1057 1062	
gcc atc gtc cgg tgc ggg gct cgc ctc ggg gtg aat aac aac cag gga	3269
Ala Ile Val Arg Ser Gly Ala Arg Leu Gly Val Asn Asn Asn Gln Gly	
1063 1068 1073 1078	
gtc aac atc ttc aac tac cag gtc gcc acc aag cag ctc ctg ttc cga	3317
Val Asn Ile Phe Asn Tyr Gln Val Ala Thr Lys Gln Leu Leu Phe Arg	
1079 1084 1089 1094	
ctg ctg gat atg ctg tcc aag gag cct ccg tgg tgt gac ggc tcc tac	3365
Leu Leu Asp Met Leu Ser Lys Glu Pro Pro Trp Cys Asp Gly Ser Tyr	
1095 1100 1105 1110	
tgc tat gag tgc act gcc agg ttc gga gtc acc act cgc aaa cac cac	3413
Cys Tyr Glu Cys Thr Ala Arg Phe Gly Val Thr Thr Arg Lys His His	
1111 1116 1121 1126	
tgt cgt cac tgc gga cgt ctt ctt tgc cat aaa tgc tgc acc aag gag	3461
Cys Arg His Cys Gly Arg Leu Leu Cys His Lys Cys Ser Thr Lys Glu	
1127 1132 1137 1142	
att cct att ata aag ttt gat ctg aac aag cct gtg cgg gtt tgc aac	3509
Ile Pro Ile Ile Lys Phe Asp Leu Asn Lys Pro Val Arg Val Cys Asn	
1143 1148 1153 1158	
att tgt ttt gat gta ctg act ctg ggt ggg gtt tct tag tgagcccccc	3558
Ile Cys Phe Asp Val Leu Thr Leu Gly Gly Val Ser *	
1159 1164 1169	

ggaggggtcca ggccacgtcc ttggtcacct cccagcagc tgctctgctc accagcctga 3618
 cccaccccag agcaggagct ggcgggtgtc ttcctgcggc aatagactgg aacgattaag 3678
 gaccatggtg tgatagatcc catttcaa at gattccatat gattgtcagt gtgtgctgtc 3738
 agactgtgat cgatttcact agatgtctca ctcacatcagan caggcattcg ggctaagtgg 3798
 taaatgtgat taggaatnag acctcctccc attctgctag caacatacag ggacacttgg 3858
 aaaaccat t cccttccagt cagcttggtg tccatcccca gagccaattt caatggaaan 3918
 gccttttccc ccggcccctt gggggggcctg gacctgatng agcgagagc ctctcagcgt 3978
 aggaagctgg ctgcttaatc gagctggctt tactctaggg taagtggctg tggacttttc 4038
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 cg 4100

<210> 1072
 <211> 777
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (36)..(653)

<400> 1072
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 Met Ala Glu Glu Glu Ala
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 gcc aag ttg gag aag cac ttg atg ctt ctg cgg cag gag tat gtc aag 101
 Ala Lys Leu Glu Lys His Leu Met Leu Leu Arg Gln Glu Tyr Val Lys
 7 12 17 22
 ctg caa aag aag ctg gcg gag aca gag aag cgc tgc gct ctc ttg gct 149
 Leu Gln Lys Lys Leu Ala Glu Thr Glu Lys Arg Cys Ala Leu Leu Ala
 23 28 33 38
 gcg cag gca aac aag gag agc agc agc gag tcc ttc atc agc cgt ctg 197
 Ala Gln Ala Asn Lys Glu Ser Ser Ser Glu Ser Phe Ile Ser Arg Leu
 39 44 49 54
 ctg gcc atc gtg gca gac ctc tac gag cag gag cag tac agc gat ctg 245
 Leu Ala Ile Val Ala Asp Leu Tyr Glu Gln Glu Gln Tyr Ser Asp Leu
 55 60 65 70
 aag ata aag gtt ggg gac agg cac atc agt gct cac aag ttt gtc ctg 293
 Lys Ile Lys Val Gly Asp Arg His Ile Ser Ala His Lys Phe Val Leu
 71 76 81 86

tca gcc cgc agt gac agc tgg agt ctg gct aac ttg tct tcc act aaa	341
Ser Ala Arg Ser Asp Ser Trp Ser Leu Ala Asn Leu Ser Ser Thr Lys	
87 92 97 102	
gag ttg gac ctg tca gat gct aat cct gag gtg acg atg aca atg ctt	389
Glu Leu Asp Leu Ser Asp Ala Asn Pro Glu Val Thr Met Thr Met Leu	
103 108 113 118	
cgc tgg atc tat aca gat gag ctg gag ttc aga gag gat gat gtg ttc	437
Arg Trp Ile Tyr Thr Asp Glu Leu Glu Phe Arg Glu Asp Asp Val Phe	
119 124 129 134	
ctg act gaa ctg atg aaa cta gca aat cgg ttt cag cta cag ctc ctc	485
Leu Thr Glu Leu Met Lys Leu Ala Asn Arg Phe Gln Leu Gln Leu Leu	
135 140 145 150	
agg gag aga tgt gag aag ggt gtt atg tct cta gtg aat gtc agg aac	533
Arg Glu Arg Cys Glu Lys Gly Val Met Ser Leu Val Asn Val Arg Asn	
151 156 161 166	
tgt att cgc ttc tac cag acg gca gag gag ctg aat gcc agc aca ctg	581
Cys Ile Arg Phe Tyr Gln Thr Ala Glu Glu Leu Asn Ala Ser Thr Leu	
167 172 177 182	
atg aac tac tgt gca gaa att att gca agt cat tgg gtg agt gag gtt	629
Met Asn Tyr Cys Ala Glu Ile Ile Ala Ser His Trp Val Ser Glu Val	
183 188 193 198	
gag ggt gtc aac aaa gca ctc tag ctggcagtcaggagaccgcc gctggggacg	683
Glu Gly Val Asn Lys Ala Leu *	
199 204	
tagttccatg gaaagtgacc tctctggcac ctggttttct cttgttacac aattgaagaa	743
taaatagttt gaaaagatga aaaaaaaaaa aaaa	777

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 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (92) .. (1090)

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cgttcagctc tagggcccggt gcaggcacac c atg aac acc tcc cca ggc acg	112
Met Asn Thr Ser Pro Gly Thr	
1 / 5	
gtg ggc agt gac ccg gtc atc ctg gcc act gca ggc tac gac cac acc	160
Val Gly Ser Asp Pro Val Ile Leu Ala Thr Ala Gly Tyr Asp His Thr	

8	13	18	23	
gtg cgc ttc tgg cag gcc cac agc ggc atc tgc acc cgg acg gtg cag				208
Val Arg Phe Trp Gln Ala His Ser Gly Ile Cys Thr Arg Thr Val Gln				
24	29	34	39	
cac cag gac tcc cag gtg aat gcc ttg gag gtc aca ccg gac cgc agc				256
His Gln Asp Ser Gln Val Asn Ala Leu Glu Val Thr Pro Asp Arg Ser				
40	45	50	55	
atg att gct gct gca gtt cag cct gtg tcc cta ggt tac cag cac atc				304
Met Ile Ala Ala Ala Val Gln Pro Val Ser Leu Gly Tyr Gln His Ile				
56	61	66	71	
cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc atc agc tac				352
Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile Ile Ser Tyr				
72	77	82	87	
gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac gaa gac ggc				400
Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His Glu Asp Gly				
88	93	98	103	
cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg atc tgg gac				448
Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg Ile Trp Asp				
104	109	114	119	
ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag gtg aac gca				496
Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln Val Asn Ala				
120	125	130	135	
ccc att aac tgc gtg tgc ctg cac ccc aac cag gca gag ctc atc gtg				544
Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu Leu Ile Val				
136	141	146	151	
ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa aca gac cac				592
Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys Thr Asp His				
152	157	162	167	
aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg tcc gcc cac				640
Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr Ser Ala His				
168	173	178	183	
atc gat ccc gac gcc agc tac atg gca gct gtc aat agc acc gga aac				688
Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser Thr Gly Asn				
184	189	194	199	
tgc tat gtc tgg aat ctg acg ggg ggc att ggt gac gag gtg acc cag				736
Cys Tyr Val Trp Asn Leu Thr Gly Gly Ile Gly Asp Glu Val Thr Gln				
200	205	210	215	
ctc atc ccc aag act aag atc cct gcc cac acg cgc tac gcc ctg cag				784
Leu Ile Pro Lys Thr Lys Ile Pro Ala His Thr Arg Tyr Ala Leu Gln				
216	221	226	231	
tgt cgc ttc agc ccc gac tcc acg ctc ctc gcc acc tgc tcg gct gat				832
Cys Arg Phe Ser Pro Asp Ser Thr Leu Leu Ala Thr Cys Ser Ala Asp				
232	237	242	247	

cag acg tgc aag atc tgg agg acg tcc aac ttc tcc ctg atg acg gag	880
Gln Thr Cys Lys Ile Trp Arg Thr Ser Asn Phe Ser Leu Met Thr Glu	
248 253 258 263	
ctg agc atc aag agc ggc aac ccc ggg gag tcc tcc cgc ggc tgg atg	928
Leu Ser Ile Lys Ser Gly Asn Pro Gly Glu Ser Ser Arg Gly Trp Met	
264 269 274 279	
tgg ggc tgc gcc ttc tcg ggg gac tcc cag tac atc gtc act gct tcc	976
Trp Gly Cys Ala Phe Ser Gly Asp Ser Gln Tyr Ile Val Thr Ala Ser	
280 285 290 295	
tcg gac aac ctg gcc cgg ctc tgg tgt gtg gag act gga gag atc aag	1024
Ser Asp Asn Leu Ala Arg Leu Trp Cys Val Glu Thr Gly Glu Ile Lys	
296 301 306 311	
aga gag tat ggc ggc cac cag aag gct gtt gtc tgc ctg gcc ttc aat	1072
Arg Glu Tyr Gly Gly His Gln Lys Ala Val Val Cys Leu Ala Phe Asn	
312 317 322 327	
gac agt gtg ctg ggc tag cctgtg acccctcggg actgcctggt gcaggtggtg	1126
Asp Ser Val Leu Gly *	
328 333	
gcagctggag ggacccatgc agcaccacagg tcagagcaga ccctccccctg ccggcctgcg	1186
ccagctggac ctgatggccc cctgtggcgc cttgacctgc tgggccaggc tgccctggga	1246
ctctcagccc ccagttgctt atccagatgt gacagagctc gacccaagcc aggctgcaca	1306
ctcctggact gggctagcct gcaactgcctg ggaaagtccg ccgagggccc aaagctgctg	1366
aggggtctga ggctggtgcc ccccccaag ctagtgtgtt ctctgcccct ccctgcccgc	1426
gtttcagggc ctcggtccat agagaacacc accaccatgg ccaggtggaa gggtttatta	1486
gtccctgcca gcagctgtcc tccctggtgc aggtggcctg gccagcccac tggattgggg	1546
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cgcagatggt gctcgggaaa aaaaaaaaaa	1635

<210> 1074
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 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (128)..(1210)

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cgcgcccgta agatgctctg acctttgacc cctgccgttc agctctaggg cccgtgcagg 120
 ccacacc atg aac acc tcc cca ggc acg gtg ggc agt gac ccg gtc atc 169
 Met Asn Thr Ser Pro Gly Thr Val Gly Ser Asp Pro Val Ile
 1 5 10
 ctg gcc act gca ggc tac gac cac acc gtg cgc ttc tgg cag gcc cac 217
 Leu Ala Thr Ala Gly Tyr Asp His Thr Val Arg Phe Trp Gln Ala His
 15 20 25 30
 agc ggc atc tgc acc cgg acg gtg cag cac cag gac tcc cag gtg aat 265
 Ser Gly Ile Cys Thr Arg Thr Val Gln His Gln Asp Ser Gln Val Asn
 31 36 41 46
 gcc ttg gag gtc aca ccg gac cgc agc atg att gct gct gca ggt tac 313
 Ala Leu Glu Val Thr Pro Asp Arg Ser Met Ile Ala Ala Ala Gly Tyr
 47 52 57 62
 cag cac atc cgc atg tat gat ctc aac tcc aat aac cct aac ccc atc 361
 Gln His Ile Arg Met Tyr Asp Leu Asn Ser Asn Asn Pro Asn Pro Ile
 63 68 73 78
 atc agc tac gac ggc gtc aac aag aac atc gcg tct gtg ggc ttc cac 409
 Ile Ser Tyr Asp Gly Val Asn Lys Asn Ile Ala Ser Val Gly Phe His
 79 84 89 94
 gaa gac ggc cgc tgg atg tac acg ggc ggc gag gac tgc aca gcc agg 457
 Glu Asp Gly Arg Trp Met Tyr Thr Gly Gly Glu Asp Cys Thr Ala Arg
 95 100 105 110
 atc tgg gac ctc agg tcc cgg aac ctg cag tgc cag cgg atc ttc cag 505
 Ile Trp Asp Leu Arg Ser Arg Asn Leu Gln Cys Gln Arg Ile Phe Gln
 111 116 121 126
 gtg aac gca ccc att aac tgc gtg tgc ctg cac ccg aac cag gca gag 553
 Val Asn Ala Pro Ile Asn Cys Val Cys Leu His Pro Asn Gln Ala Glu
 127 132 137 142
 ctc atc gtg ggt gac cag agc ggg gct atc cac atc tgg gac ttg aaa 601
 Leu Ile Val Gly Asp Gln Ser Gly Ala Ile His Ile Trp Asp Leu Lys
 143 148 153 158
 aca gac cac aac gag cag ctg atc cct gag ccc gag gtc tcc atc acg 649
 Thr Asp His Asn Glu Gln Leu Ile Pro Glu Pro Glu Val Ser Ile Thr
 159 164 169 174
 tcc gcc cac atc gat ccc gac gcc agc tac atg gca gct gtc aat agc 697
 Ser Ala His Ile Asp Pro Asp Ala Ser Tyr Met Ala Ala Val Asn Ser
 175 180 185 190
 acc ctg gtg ccc ttc tcc tgt cta ctt ccg ttg gcc atc ggc atc ctc 745
 Thr Leu Val Pro Phe Ser Cys Leu Leu Pro Leu Ala Ile Gly Ile Leu
 191 196 201 206
 cag gaa gga gaa ttt gag tcc ttg gcc agg cgt ggc ctc ctg ttc ttg 793
 Gln Glu Gly Glu Phe Glu Ser Leu Ala Arg Arg Gly Leu Leu Phe Leu

<210> 1075
 <211> 577
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
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<400> 1075

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gat ccc aat cct tct gca gcc cca aca tcc acc tgc gca cct agg aaa      98
Asp Pro Asn Pro Ser Ala Ala Pro Thr Ser Thr Cys Ala Pro Arg Lys
  14             19             24             29

atg ccc aaa agg att tca ata tcc aaa caa ctg gct tca gtg aaa gct      146
Met Pro Lys Arg Ile Ser Ile Ser Lys Gln Leu Ala Ser Val Lys Ala
  30             35             40             45

ctg agg aag tgc tca gat ctg gaa aaa gct att gcc acc act gct ctg      194
Leu Arg Lys Cys Ser Asp Leu Glu Lys Ala Ile Ala Thr Thr Ala Leu
  46             51             56             61

att ttc aga aat tct tct gac tct gat ggt aaa ctt gaa aaa gct att      242
Ile Phe Arg Asn Ser Ser Asp Ser Asp Gly Lys Leu Glu Lys Ala Ile
  62             67             72             77

gcc aaa gat ctg ctg caa acc caa ttt agg aat ttc gca gag gga caa      290
Ala Lys Asp Leu Leu Gln Thr Gln Phe Arg Asn Phe Ala Glu Gly Gln
  78             83             88             93

gaa acc aag cca aaa tac aga gag atc ctt tct gaa ctt gat gag cac      338
Glu Thr Lys Pro Lys Tyr Arg Glu Ile Leu Ser Glu Leu Asp Glu His
  94             99            104            109

aca gaa aat aag cta gat ttt gaa gac ttc atg atc ttg ctc tta agc      386
Thr Glu Asn Lys Leu Asp Phe Glu Asp Phe Met Ile Leu Leu Leu Ser
 110            115            120            125

atc act gtc atg tca gat ctg cta caa aat ata cgg aat gta aaa att      434
Ile Thr Val Met Ser Asp Leu Leu Gln Asn Ile Arg Asn Val Lys Ile
 126            131            136            141

atg aaa tga acagttc taaatatgct gtataaaata atggcaaaag acagtgttat      490
Met Lys *
142

taaaatgttt ccatcttatt tgtgattaat tgaatatatc tatcaacgaa atcgtcgaca      550

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 agcttacgtt tttcatgttg taatgatctg ccgtacggac gatcacctct aagttagaga 240
 gttctgtaat ttggcttgga ttaaagatgc ttggttagtg aaagctgctg ctttttttat 300
 agtcaaagga ctggttctga gagccttggt gcag atg gct gag gtc acc gtc 352
 Met Ala Glu Val Thr Val
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 cca agg gtg tat gtc gtg ttt ggc atc cat tgc atc atg gcg aag gca 400
 Pro Arg Val Tyr Val Val Phe Gly Ile His Cys Ile Met Ala Lys Ala
 7 12 17 22
 tct tca gat gtg cag gtt tca ggc ttt cat cgg aaa atc cag cac gtt 448
 Ser Ser Asp Val Gln Val Ser Gly Phe His Arg Lys Ile Gln His Val
 23 28 33 38
 aaa aat gaa ctt tgc cac atg ttg agc ttg gag gag gtg gcc cca gtg 496
 Lys Asn Glu Leu Cys His Met Leu Ser Leu Glu Glu Val Ala Pro Val
 39 44 49 54
 ctg cag cag aca tta ctt cag gac aac ctc ttg ggc agg gta cat ttt 544
 Leu Gln Gln Thr Leu Leu Gln Asp Asn Leu Leu Gly Arg Val His Phe
 55 60 65 70
 gac caa ttt aaa gaa gca tta ata ctc atc ttg tcc aga act ctg tca 592
 Asp Gln Phe Lys Glu Ala Leu Ile Leu Ile Leu Ser Arg Thr Leu Ser
 71 76 81 86
 gat gaa gaa cac ttc caa gaa cca gac tgc tca cta gaa gct cag ccc 640
 Asp Glu Glu His Phe Gln Glu Pro Asp Cys Ser Leu Glu Ala Gln Pro
 87 92 97 102
 aga tat gtt aga ggt gag aag cct tac gga cga agg tcc ttg ccc gag 688
 Arg Tyr Val Arg Gly Glu Lys Pro Tyr Gly Arg Arg Ser Leu Pro Glu
 103 108 113 118
 ttc caa gag tcc gtg gag gag ttt cct gag gtg acg gtg att gag ccc 736
 Phe Gln Glu Ser Val Glu Glu Phe Pro Glu Val Thr Val Ile Glu Pro
 119 124 129 134

ctg gat gaa gaa gcg cgg cct tca cac atc cca gcc ggt gac tgc agt	784
Leu Asp Glu Glu Ala Arg Pro Ser His Ile Pro Ala Gly Asp Cys Ser	
135 140 145 150	
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Glu His Trp Lys Thr Gln Arg Ser Glu Glu Tyr Glu Ala Glu Gly Gln	
151 156 161 166	
tta agg ttt tgg aac cca gat gac ttg aat gct tca cag agt gga tct	880
Leu Arg Phe Trp Asn Pro Asp Asp Leu Asn Ala Ser Gln Ser Gly Ser	
167 172 177 182	
tcc cct ccc caa gac tgg ata gaa gag aaa ctg caa caa gtt tgt gaa	928
Ser Pro Pro Gln Asp Trp Ile Glu Glu Lys Leu Gln Gln Val Cys Glu	
183 188 193 198	
gat ttg ggg atc acc cct gat ggt cac ctg aac cgg aag aag ctg gtt	976
Asp Leu Gly Ile Thr Pro Asp Gly His Leu Asn Arg Lys Lys Leu Val	
199 204 209 214	
tcc atc tgt gag cag tat ggt ttg cag aat gtg gat gga gag atg ctc	1024
Ser Ile Cys Glu Gln Tyr Gly Leu Gln Asn Val Asp Gly Glu Met Leu	
215 220 225 230	
gag gaa gta ttc cat aat ctt gat cct gac ggt aca atg agt gta gaa	1072
Glu Glu Val Phe His Asn Leu Asp Pro Asp Gly Thr Met Ser Val Glu	
231 236 241 246	
gat ttt ttc tat ggt ttg ttt aaa aat gga aaa tct ctt aca cca tca	1120
Asp Phe Phe Tyr Gly Leu Phe Lys Asn Gly Lys Ser Leu Thr Pro Ser	
247 252 257 262	
gca tct act cca tat aga caa cta aaa agg cac ctt tcc atg cag tct	1168
Ala Ser Thr Pro Tyr Arg Gln Leu Lys Arg His Leu Ser Met Gln Ser	
263 268 273 278	
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Phe Asp Glu Ser Gly Arg Arg Thr Thr Thr Ser Ser Ala Thr Thr Ser	
279 284 289 294	
acc att ggc ttt cgg gtc ttc tcc tgc ctg gat gat ggg atg ggc cat	1264
Thr Ile Gly Phe Arg Val Phe Ser Cys Leu Asp Asp Gly Met Gly His	
295 300 305 310	
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Ala Ser Val Glu Arg Ile Leu Asp Thr Trp Gln Glu Glu Gly Ile Glu	
311 316 321 326	
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Asn Ser Gln Glu Ile Leu Lys Ala Leu Asp Phe Ser Leu Asp Gly Asn	
327 332 337 342	
atc aat ttg aca gaa tta aca ctg gcc ctt gaa aat gaa ctt ttg gtt	1408
Ile Asn Leu Thr Glu Leu Thr Leu Ala Leu Glu Asn Glu Leu Leu Val	
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acc aag aac agc att cac cag gcg gct ctg gcc agc ttt aag gct gaa	1456
Thr Lys Asn Ser Ile His Gln Ala Ala Leu Ala Ser Phe Lys Ala Glu	
359 364 369 374	
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Ile Arg His Leu Leu Glu Arg Val Asp Gln Val Val Arg Glu Lys Glu	
375 380 385 390	
aag cta cgg tca gat ctg gac aag gcc gag aag ctc aag tct tta atg	1552
Lys Leu Arg Ser Asp Leu Asp Lys Ala Glu Lys Leu Lys Ser Leu Met	
391 396 401 406	
gcc tcg gag gtg gat gat cac cat gcg gcc ata gag cgg cgg aat gag	1600
Ala Ser Glu Val Asp Asp His His Ala Ala Ile Glu Arg Arg Asn Glu	
407 412 417 422	
tac aac ctc agg aaa ctg gat gaa gag tac aag gag cga ata gca gcc	1648
Tyr Asn Leu Arg Lys Leu Asp Glu Glu Tyr Lys Glu Arg Ile Ala Ala	
423 428 433 438	
tta aaa aat gaa ctc cga aaa gag aga gag cag atc ctg cag cag gca	1696
Leu Lys Asn Glu Leu Arg Lys Glu Arg Glu Gln Ile Leu Gln Gln Ala	
439 444 449 454	
ggc aag cag cgt tta gaa ctt gaa cag gaa att gaa aag gca aaa aca	1744
Gly Lys Gln Arg Leu Glu Leu Glu Gln Glu Ile Glu Lys Ala Lys Thr	
455 460 465 470	
gaa gag aac tat atc cgg gac cgc ctt gcc ctc tct tta aag gaa aac	1792
Glu Glu Asn Tyr Ile Arg Asp Arg Leu Ala Leu Ser Leu Lys Glu Asn	
471 476 481 486	
agt cgt ctg gaa aat gag ctt cta gaa aat gca gag aag ttg gca gaa	1840
Ser Arg Leu Glu Asn Glu Leu Leu Glu Asn Ala Glu Lys Leu Ala Glu	
487 492 497 502	
tat gag aat ctg aca aac aaa ctt cag aga aat ttg gaa aat gtg tta	1888
Tyr Glu Asn Leu Thr Asn Lys Leu Gln Arg Asn Leu Glu Asn Val Leu	
503 508 513 518	
gca gaa aag ttt ggt gac ctc gat cct agc agt gct gag ttc ttc ctg	1936
Ala Glu Lys Phe Gly Asp Leu Asp Pro Ser Ser Ala Glu Phe Phe Leu	
519 524 529 534	
caa gaa gag aga ctg aca cag atg aga aat gaa tat gag cgg cag tgc	1984
Gln Glu Glu Arg Leu Thr Gln Met Arg Asn Glu Tyr Glu Arg Gln Cys	
535 540 545 550	
agg gta cta caa gac caa gta gat gaa ctc cag tct gag ctg gaa gaa	2032
Arg Val Leu Gln Asp Gln Val Asp Glu Leu Gln Ser Glu Leu Glu Glu	
551 556 561 566	
tat cgt gca caa ggc aga gtg ctc agg ctt ccg ttg aag aac tca ccg	2080
Tyr Arg Ala Gln Gly Arg Val Leu Arg Leu Pro Leu Lys Asn Ser Pro	
567 572 577 582	
tca gaa gaa gtt gag gct aac agc ggt ggc att gaa ccc gaa cac ggg	2128

807	812	817	822	
cag ttt cag tct gat tgt cag aaa gtc act gag agg tgt gaa agc gct				2848
Gln Phe Gln Ser Asp Cys Gln Lys Val Thr Glu Arg Cys Glu Ser Ala				
823	828	833	838	
ctg caa agc ctg gag ggg cgc tac cgc caa gag ctg aag gac ctc cag				2896
Leu Gln Ser Leu Glu Gly Arg Tyr Arg Gln Glu Leu Lys Asp Leu Gln				
839	844	849	854	
gaa cag cag cgt gag gag aaa tcc cag tgg gaa ttt gag aag gac gag				2944
Glu Gln Gln Arg Glu Glu Lys Ser Gln Trp Glu Phe Glu Lys Asp Glu				
855	860	865	870	
ctc acc cag gag tgt gcg gaa gca cag gag ctg ctg aaa gag act ctt				2992
Leu Thr Gln Glu Cys Ala Glu Ala Gln Glu Leu Leu Lys Glu Thr Leu				
871	876	881	886	
aag aga gag aaa aca act tct ctg gtc ctg acc cag gag aga gag atg				3040
Lys Arg Glu Lys Thr Thr Ser Leu Val Leu Thr Gln Glu Arg Glu Met				
887	892	897	902	
ctg gag aaa aca tac aaa gac cat ttg aac agc atg gtc gtc gag aga				3088
Leu Glu Lys Thr Tyr Lys Asp His Leu Asn Ser Met Val Val Glu Arg				
903	908	913	918	
cag cag cta ctc caa gac ctg gaa gac cta aga aat gta tct gaa acc				3136
Gln Gln Leu Leu Gln Asp Leu Glu Asp Leu Arg Asn Val Ser Glu Thr				
919	924	929	934	
cag caa agc ctg ctg tct gac cag ata ctt gag ctg aag agc agt cac				3184
Gln Gln Ser Leu Leu Ser Asp Gln Ile Leu Glu Leu Lys Ser Ser His				
935	940	945	950	
aaa agg gaa ctg agg gag cgt gag gag gtc ctg tgc cag cag ggg gtc				3232
Lys Arg Glu Leu Arg Glu Arg Glu Glu Val Leu Cys Gln Gln Gly Val				
951	956	961	966	
tcg gag cag ctg gcc agc cag cgg ctg gaa aga cta gaa atg gaa cat				3280
Ser Glu Gln Leu Ala Ser Gln Arg Leu Glu Arg Leu Glu Met Glu His				
967	972	977	982	
gac cag gaa agg cag gaa atg atg tcc aag ctt cta gcc atg gag aac				3328
Asp Gln Glu Arg Gln Glu Met Met Ser Lys Leu Leu Ala Met Glu Asn				
983	988	993	998	
att cac aaa gcg acc tgt gag aca gca gat cga gaa aga gcc gag atg				3376
Ile His Lys Ala Thr Cys Glu Thr Ala Asp Arg Glu Arg Ala Glu Met				
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Ser Thr Glu Ile Ser Arg Leu Gln Ser Lys Ile Lys Glu Met Gln Gln				
1015	1020	1025	1030	
gca aca tct cct ctc tct atg ctt cag agt ggt tgc cag gtg ata gga				3472
Ala Thr Ser Pro Leu Ser Met Leu Gln Ser Gly Cys Gln Val Ile Gly				
1031	1036	1041	1046	

gag gag gag gtg gaa gga gat gga gcc ctg tcc ctg ctt cag aaagggg	3520
Glu Glu Glu Val Glu Gly Asp Gly Ala Leu Ser Leu Leu Gln Lys Gly	
1047 1052 1057 1062	
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Glu Gln Leu Leu Glu Glu Asn Gly Asp Val Leu Leu Ser Leu Gln Arg	
1063 1068 1073 1078	
gct cat gaa cag gca gtg aag gaa aat gtg aaa atg gct act gaa att	3616
Ala His Glu Gln Ala Val Lys Glu Asn Val Lys Met Ala Thr Glu Ile	
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tct aga ttg caa cag agg cta caa aag tta gag cca th ggg tta gta atg	3664
Ser Arg Leu Gln Gln Arg Leu Gln Lys Leu Glu Pro Gly Leu Val Met	
1095 1100 1105 1110	
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Ser Ser Cys Leu Asp Glu Pro Ala Thr Glu Phe Phe Gly Asn Thr Ala	
1111 1116 1121 1126	
gaa caa aca gag ccg ttt tta cag caa aac cga acg aag caa gta gaa	3760
Glu Gln Thr Glu Pro Phe Leu Gln Gln Asn Arg Thr Lys Gln Val Glu	
1127 1132 1137 1142	
ggt gtg acc agg cgg cat gtc cta agt gac ctg gaa gat gat gag gtc	3808
Gly Val Thr Arg Arg His Val Leu Ser Asp Leu Glu Asp Asp Glu Val	
1143 1148 1153 1158	
cgg gac ctg gga agt aca ggg acg agc tct gtt cag aga cag gaa gtc	3856
Arg Asp Leu Gly Ser Thr Gly Thr Ser Ser Val Gln Arg Gln Glu Val	
1159 1164 1169 1174	
aaa ata gag gag tct gaa gct tca gta gag ggt ttt tcc gag ctt gaa	3904
Lys Ile Glu Glu Ser Glu Ala Ser Val Glu Gly Phe Ser Glu Leu Glu	
1175 1180 1185 1190	
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Asn Ser Glu Glu Thr Arg Thr Glu Ser Trp Glu Leu Lys Asn His Ile	
1191 1196 1201 1206	
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Ser Leu Leu Gln Glu Gln Leu Met Met Phe Cys Ala Asp Cys Asp Leu	
1207 1212 1217 1222	
gct tct gaa aag aaa cag gag cta ctt ttt gat gtt tct gtg ctc aaa	4048
Ala Ser Glu Lys Lys Gln Glu Leu Leu Phe Asp Val Ser Val Leu Lys	
1223 1228 1233 1238	
aag aaa ctg aaa atc ctt gag aga atc cct gag gct tct ccc aga tat	4096
Lys Lys Leu Lys Ile Leu Glu Arg Ile Pro Glu Ala Ser Pro Arg Tyr	
1239 1244 1249 1254	
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Lys Leu Leu Tyr Glu Asp Val Ser Arg Glu Asn Asp Cys Leu Gln Glu	
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1271 1276 1281 1286	
aaa gaa ctc act gca gag gtt ttc agg ttg cag gat gag ctg aag aaa	4240
Lys Glu Leu Thr Ala Glu Val Phe Arg Leu Gln Asp Glu Leu Lys Lys	
1287 1292 1297 1302	
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Met Glu Glu Val Thr Glu Thr Phe Leu Ser Leu Glu Lys Ser Tyr Asp	
1303 1308 1313 1318	
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Glu Val Lys Ile Glu Asn Glu Glu Leu Asn Val Leu Val Leu Arg Leu	
1319 1324 1329 1334	
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Gln Asn Lys His Phe Gln His Gln Ala Thr Leu Pro Asn Leu Glu Leu	
1447 1452 1457 1462	
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1463 1468 1473 1478	
cct att tta att tac caa aaa aat ttt ctt tct ccc gga aaa aag gag	4816
Pro Ile Leu Ile Tyr Gln Lys Asn Phe Leu Ser Pro Gly Lys Lys Glu	
1479 1484 1489 1494	
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Glu Glu Leu Lys Ala Met Met His Asp Leu Gln Ile Pro Cys Ser Glu	
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Met Gln Gln Lys Val Glu Leu Leu Lys Tyr Glu Ser Glu Lys Leu His	
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Gln Glu Asn Ser Phe Leu Arg Asn Glu Ile Thr Thr Leu Asn Glu Glu	
1527 1532 1537 1542	
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Asp Ser Ile Ser Asn Leu Lys Leu Gly Thr Leu Asn Gly Ser Gln Glu	
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1639 1644 1649 1654	
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Val Gln Ser Ser Thr Leu Val Ser Ser Leu Glu Ala Glu Leu Ser Glu	
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Lys Leu Ala Lys Ser Ser Leu Leu Glu His Arg Ile Ala Thr Met Lys				
1735	1740	1745	1750	
cag gaa cag aaa tcc tgg gaa cat cag agt gcg agc tta aag aca cag				5632
Gln Glu Gln Lys Ser Trp Glu His Gln Ser Ala Ser Leu Lys Thr Gln				
1751	1756	1761	1766	
ctg gtg gct tct cag gaa aag gtt cag aat tta gaa gac acc gtg cag				5680
Leu Val Ala Ser Gln Glu Lys Val Gln Asn Leu Glu Asp Thr Val Gln				
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Asn Val Asn Leu Gln Met Ser Arg Met Lys Ser Asp Pro Arg Val Thr				
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1799	1804	1809	1814	
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Gln Leu Gln Asn Ser Val Ala Arg Ala Gly Pro Arg Glu Ile Asp His				
1815	1820	1825	1830	
cca tca ggg ttc cat aac cag cag aaa agg ctg tct tgg gac aag ttg				5872
Pro Ser Gly Phe His Asn Gln Gln Lys Arg Leu Ser Trp Asp Lys Leu				
1831	1836	1841	1846	
gat tat ctg atg aat gag gaa cag cag ttg ttt tgc aaa gag aat gag				5920
Asp Tyr Leu Met Asn Glu Glu Gln Gln Leu Phe Cys Lys Glu Asn Glu				
1847	1852	1857	1862	
agg ttc cag acc atg gta cag aac acc aaa gcc gaa tta acg cat tcc				5968
Arg Phe Gln Thr Met Val Gln Asn Thr Lys Ala Glu Leu Thr His Ser				
1863	1868	1873	1878	
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Arg Glu Lys Phe Arg Gln Leu Glu Ser Asn Leu Leu Pro Lys His Gln				
1879	1884	1889	1894	
aaa tat tta aac cca tca ggt acc atg aat ccc aca gag caa gaa aaa				6064
Lys Tyr Leu Asn Pro Ser Gly Thr Met Asn Pro Thr Glu Gln Glu Lys				
1895	1900	1905	1910	
ttg agc tta aag aga gag tgt gat cag ttt cag aaa gaa caa tct cct				6112
Leu Ser Leu Lys Arg Glu Cys Asp Gln Phe Gln Lys Glu Gln Ser Pro				
1911	1916	1921	1926	
gct aac agg aag gtc agt cag atg aat tcc ctt gaa caa gaa tta aaa				6160
Ala Asn Arg Lys Val Ser Gln Met Asn Ser Leu Glu Gln Glu Leu Lys				
1927	1932	1937	1942	
aca att cat ttg gaa aat gaa ggc ctg aaa aag aaa caa gta aaa ctg				6208
Thr Ile His Leu Glu Asn Glu Gly Leu Lys Lys Lys Gln Val Lys Leu				
1943	1948	1953	1958	

ttc gac tgc gcc gtg tgc ctt gag gtg tta cac cag cct gtc cgg acc	260
Phe Asp Cys Ala Val Cys Leu Glu Val Leu His Gln Pro Val Arg Thr	
35 40 45 50	
cgc tgt ggc cac gta ttc tgc cgt tcc tgt att gct acc agt cta aag	308
Arg Cys Gly His Val Phe Cys Arg Ser Cys Ile Ala Thr Ser Leu Lys	
51 56 61 66	
aac aac aag tgg acc tgt cct tat tgc cgg gca tat ctt cct tca gaa	356
Asn Asn Lys Trp Thr Cys Pro Tyr Cys Arg Ala Tyr Leu Pro Ser Glu	
67 72 77 82	
gga gtt cca gca act gat gta gcc aaa aga atg aaa tca gag tat aag	404
Gly Val Pro Ala Thr Asp Val Ala Lys Arg Met Lys Ser Glu Tyr Lys	
83 88 93 98	
aac tgc gct gag tgt gac acc ctg gtt tgc ctc agt gaa atg agg gca	452
Asn Cys Ala Glu Cys Asp Thr Leu Val Cys Leu Ser Glu Met Arg Ala	
99 104 109 114	
cat att cgg act tgt cag aag tac ata gat aag tat gga cca cta caa	500
His Ile Arg Thr Cys Gln Lys Tyr Ile Asp Lys Tyr Gly Pro Leu Gln	
115 120 125 130	
gaa ctt gag gag aca gca gca agg tgt gta tgt ccc ttt tgt cag agg	548
Glu Leu Glu Glu Thr Ala Ala Arg Cys Val Cys Pro Phe Cys Gln Arg	
131 136 141 146	
gaa ctg tat gaa gac agc ttg ctg gat cat tgt att act cat cac aga	596
Glu Leu Tyr Glu Asp Ser Leu Leu Asp His Cys Ile Thr His His Arg	
147 152 157 162	
tcg gaa cgg agg cct gtg ttc tgt cca ctt tgc cgt tta ata ccc gat	644
Ser Glu Arg Arg Pro Val Phe Cys Pro Leu Cys Arg Leu Ile Pro Asp	
163 168 173 178	
gag aat cca agc agc ttc agt ggc agt tta ata aga cat ctg caa gtt	692
Glu Asn Pro Ser Ser Phe Ser Gly Ser Leu Ile Arg His Leu Gln Val	
179 184 189 194	
agt cac act ttg ttt tat gat gat ttc ata gat ttt aat ata att gag	740
Ser His Thr Leu Phe Tyr Asp Asp Phe Ile Asp Phe Asn Ile Ile Glu	
195 200 205 210	
gaa gct ctt atc cga aga gtc tta gac cgg tca ctt ctt gaa tat gtg	788
Glu Ala Leu Ile Arg Arg Val Leu Asp Arg Ser Leu Leu Glu Tyr Val	
211 216 221 226	
aat cac tcg aac acc aca taa tt ttattaaaac gaagggaaaaa gggaccactg	841
Asn His Ser Asn Thr *	
227 232	
aattgcacca ttaagatgc tgcttgaaca aatgggaggg aagttgtcaa tgattgatgg	901
gcaaaaatgt acaacacagt tatgtgtttg tccatgttta ttgttatagt gcatttaaaa	961

actgctttaa ttttaatggt ttaaattctgt tttacatcct tgagattctt acacatctaa 1021
 caacaaaaaa aattatctac atcagtcatt gttacatgga aaagacaggt ggtaggcaag 1081
 taggtggagg atctcggttt gcaaattaga taatactctg tgtataatgc tacatatccg 1141
 gacgcgtggg tcgacccggg aattccggac cggtacctgc aggcgtacca gctttcccta 1201
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 <213> Homo sapiens

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 <222> (1)...(910)
 <223> n = a,t,c or g

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 gcggcggcgg cgttttcttc caacaggctc tggggcgccg agcggacagg aacgcagcac 120
 gggggctccg aggcgggggtc tgggtgttga ggggcgactg gagcc atg gcg gag 174
 Met Ala Glu
 1
 tcg gcg cct gct cgg cac agg aga aaa cga cgc tcc aca cct tta act 222
 Ser Ala Pro Ala Arg His Arg Arg Lys Arg Arg Ser Thr Pro Leu Thr
 4 9 14 19
 tct tcc aca ctt cct tca caa gca aca gag aaa agc tcc tat ttt cag 270
 Ser Ser Thr Leu Pro Ser Gln Ala Thr Glu Lys Ser Ser Tyr Phe Gln
 20 25 30 35
 acc acc gag att tca ctc tgg acg gtg gtg gcc gct att cag gct gtg 318
 Thr Thr Glu Ile Ser Leu Trp Thr Val Val Ala Ala Ile Gln Ala Val
 36 41 46 51
 gag aag aag atg gag tcc cag gct gcc cgg cta cag agc ctg gag ggg 366
 Glu Lys Lys Met Glu Ser Gln Ala Ala Arg Leu Gln Ser Leu Glu Gly
 52 57 62 67
 cgc acg ggg aca gcc gag aag aag ctg gct gac tgc gag aag atg gcc 414
 Arg Thr Gly Thr Ala Glu Lys Lys Leu Ala Asp Cys Glu Lys Met Ala
 68 73 78 83
 gtg gag ttc ggg aac cag ctg gag ggc aag tgg gcc gtg ctg ggg acc 462

Val Glu Phe Gly Asn Gln Leu Glu Gly Lys Trp Ala Val Leu Gly Thr	
84 89 94 99	
ctg ctg cag gag tat ggg cta ctg cag agg cgg ctg gag aac gtg gag	510
Leu Leu Gln Glu Tyr Gly Leu Leu Gln Arg Arg Leu Glu Asn Val Glu	
100 105 110 115	
aac ctg ctg cgc aac agg aac ttc tgg atc ctg cgg ctg ccc ccg ggc	558
Asn Leu Leu Arg Asn Arg Asn Phe Trp Ile Leu Arg Leu Pro Pro Gly	
116 121 126 131	
agc aag ggg gag tcc cct aag gtg cct atg aca ttt gat gat gtg gct	606
Ser Lys Gly Glu Ser Pro Lys Val Pro Met Thr Phe Asp Asp Val Ala	
132 137 142 147	
gtg tag ttctctgagc aagtgtgggg caagcccagt cgttcagaat tggagccgag	662
Val *	
148	
ttcacggaga cagagaacca gacagacaga agaccagag ccctgggcca ctccactcct	722
gatgatttag ctgccggtcc cactctgacc ttttgaaag aggctgtgtg aggaaggagt	782
agcctgggtg ggggtctcac tggcctgact ctgcaaggaa gaggtggctg cacttcccc	842
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tcattttcaa gctatagaaa aattgcaaaa acagtataag aaattctcat atacccttta	180
cccaaatttg ccaagtgttt acatttttcc tgtttgcttt gttgatgacc atcaaccaa	240
taccaccagg aacatacctg taaccagaga cagctgattg gtagctttct gcagcaagga	300
agctcacata ccacggcaca attctgcttt ccctggaact gtgtcaattca tgactctgca	360
aattccctaa agtaggagga aaa atg acc atg tcc aag gag gca gtg acc	410
Met Thr Met Ser Lys Glu Ala Val Thr	

ttc aag gat gtg gca gtg gtc ttc act gag gag gag ctg ggg ctg ctg	458
Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu Gly Leu Leu	
10 15 20 25	
gac ctt gcc cag agg aag ctg tat cga gat gtg atg ctg gag aac ttc	506
Asp Leu Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu Glu Asn Phe	
26 31 36 41	
agg aac ctg ctg tca gtg ggg cat caa cca ttc cac cga gat act ttc	554
Arg Asn Leu Leu Ser Val Gly His Gln Pro Phe His Arg Asp Thr Phe	
42 47 52 57	
cac ttt cta agg gag gaa aag ttt tgg atg atg gat ata gca acc caa	602
His Phe Leu Arg Glu Glu Lys Phe Trp Met Met Asp Ile Ala Thr Gln	
58 63 68 73	
aga gaa ggg aat tca gga ggc aag atc caa cct gag atg aag act ttt	650
Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Pro Glu Met Lys Thr Phe	
74 79 84 89	
cca gaa gca gga cca cat gaa ggg tgg tcc tgc cag cag atc tgg gaa	698
Pro Glu Ala Gly Pro His Glu Gly Trp Ser Cys Gln Gln Ile Trp Glu	
90 95 100 105	
gaa att gca agt gat tta acc agg cct caa gac tct acc ata aag agc	746
Glu Ile Ala Ser Asp Leu Thr Arg Pro Gln Asp Ser Thr Ile Lys Ser	
106 111 116 121	
tct cag ttc ttt gaa cag ggt gat gcc cac tcc cag gtt gag gaa gga	794
Ser Gln Phe Phe Glu Gln Gly Asp Ala His Ser Gln Val Glu Glu Gly	
122 127 132 137	
ata tct ata atg cac aca gga cag aaa cct tcc aat tgt ggg aag agt	842
Ile Ser Ile Met His Thr Gly Gln Lys Pro Ser Asn Cys Gly Lys Ser	
138 143 148 153	
aaa caa tcc ttc agt gat atg tcc atc ttt gat ctt cct cag caa ata	890
Lys Gln Ser Phe Ser Asp Met Ser Ile Phe Asp Leu Pro Gln Gln Ile	
154 159 164 169	
cgc tca gca gag aag tct cat tcc tgt gat gag tgt gga aaa agc ttc	938
Arg Ser Ala Glu Lys Ser His Ser Cys Asp Glu Cys Gly Lys Ser Phe	
170 175 180 185	
tgt tac atc tca gca ctt cat att cat cag aga gtc cac ctg gga gag	986
Cys Tyr Ile Ser Ala Leu His Ile His Gln Arg Val His Leu Gly Glu	
186 191 196 201	
aaa ctc ttt aag tgt gac gtg tgt ggt aag gaa ttc agt cag agt tta	1034
Lys Leu Phe Lys Cys Asp Val Cys Gly Lys Glu Phe Ser Gln Ser Leu	
202 207 212 217	
cat ctg caa act cat cag aga gtc cat act gga gag aaa cct ttc aaa	1082
His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys Pro Phe Lys	
218 223 228 233	

tgt gaa caa tgt ggg aga ggc ttc aga tgt aga tca gca ctt aca gtt Cys Glu Gln Cys Gly Arg Gly Phe Arg Cys Arg Ser Ala Leu Thr Val 234 239 244 249	1130
cat tgc aaa tta cac atg gga gag aaa cat tat aat tgt gag gca tgt His Cys Lys Leu His Met Gly Glu Lys His Tyr Asn Cys Glu Ala Cys 250 255 260 265	1178
ggg agg gcc ttc att cat gat ttc cag ctt cag aaa cat cag aga att Gly Arg Ala Phe Ile His Asp Phe Gln Leu Gln Lys His Gln Arg Ile 266 271 276 281	1226
cat act ggg gag aag cca ttc aaa tgt gaa ata tgt ggt aag agc ttc His Thr Gly Glu Lys Pro Phe Lys Cys Glu Ile Cys ³ Gly Lys Ser Phe 282 287 292 297	1274
tgt ctt agg tca agt ctt aat agg cat tgc atg gtc cac aca gca gag Cys Leu Arg Ser Ser Leu Asn Arg His Cys Met Val His Thr Ala Glu 298 303 308 313	1322
aaa ctg tac aaa tct gaa aag tat gga aga ggt ttc att gat agg cta Lys Leu Tyr Lys Ser Glu Lys Tyr Gly Arg Gly Phe Ile Asp Arg Leu 314 319 324 329	1370
gat ttg cat aag cat cag atg att cat atg gga cag aaa cca tat aat Asp Leu His Lys His Gln Met Ile His Met Gly Gln Lys Pro Tyr Asn 330 335 340 345	1418
tgt aaa gaa tgt ggg aag agc ttc aaa tgg tcc tca tat ctt ttg gtc Cys Lys Glu Cys Gly Lys Ser Phe Lys Trp Ser Ser Tyr Leu Leu Val 346 351 356 361	1466
cat caa cga gtc cac act gga gaa aag cca tac aaa tgt gag gag tgt His Gln Arg Val His Thr Gly Glu Lys Pro Tyr Lys Cys Glu Glu Cys 362 367 372 377	1514
ggg aag ggc tac att agt aag tca ggt ctt gac ttg cac cat aga gcc Gly Lys Gly Tyr Ile Ser Lys Ser Gly Leu Asp Leu His His Arg Ala 378 383 388 393	1562
cac aca gga gag aga cct tat aac tgt gat gac tgt ggg aag agc ttt His Thr Gly Glu Arg Pro Tyr Asn Cys Asp Asp Cys Gly Lys Ser Phe 394 399 404 409	1610
aga cag gcc tca agt att ttg aat cat aag aga ctc cat tgc cga aaa Arg Gln Ala Ser Ser Ile Leu Asn His Lys Arg Leu His Cys Arg Lys 410 415 420 425	1658
aaa cca ttc aaa tgt gag gat tgt gga aag aag ctt gta tac cgg tca Lys Pro Phe Lys Cys Glu Asp Cys Gly Lys Lys Leu Val Tyr Arg Ser 426 431 436 441	1706
tac cgt aaa gac caa caa aaa aac cac agt gga gaa aat cca tcc aaa Tyr Arg Lys Asp Gln Gln Lys Asn His Ser Gly Glu Asn Pro Ser Lys 442 447 452 457	1754
tgt gaa gac tgt ggg aag cgc tac aag agg cgc ttg aat ctt gat ata	1802

Cys Glu Asp Cys Gly Lys Arg Tyr Lys Arg Arg Leu Asn Leu Asp Ile
 458 463 468 473

att tta tca tta ttt tta aat gac acg taa 1832
 Ile Leu Ser Leu Phe Leu Asn Asp Thr *
 474 479

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 <212> DNA
 <213> Homo sapiens

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 cggaaaagcaa aggc atg att tca cct tca ctt gaa ctg ctt cat tca gga 170
 Met Ile Ser Pro Ser Leu Glu Leu Leu His Ser Gly
 1 5 10
 ctc tgc aaa ttc cct gaa gta gaa gga aaa atg acc aca ttc aaa gag 218
 Leu Cys Lys Phe Pro Glu Val Glu Gly Lys Met Thr Thr Phe Lys Glu
 13 18 23 28
 gca gtg aca ttc aag gat gtg gct gtg gtc ttc act gag gag gag ctg 266
 Ala Val Thr Phe Lys Asp Val Ala Val Val Phe Thr Glu Glu Glu Leu
 29 34 39 44
 ggg ctg ctg gac cct gcc cag agg aag ctg tac cga gat gtg atg cta 314
 Gly Leu Leu Asp Pro Ala Gln Arg Lys Leu Tyr Arg Asp Val Met Leu
 45 50 55 60
 gag aac ttc agg aac ctg ctc tca gta ggg aat caa cca ttc cac caa 362
 Glu Asn Phe Arg Asn Leu Leu Ser Val Gly Asn Gln Pro Phe His Gln
 61 66 71 76
 gat act ttc cac ttc tta ggg aag gaa aag ttt tgg aag atg aag aca 410
 Asp Thr Phe His Phe Leu Gly Lys Glu Lys Phe Trp Lys Met Lys Thr
 77 82 87 92
 aca agc caa aga gaa ggg aat tca gga ggc aag atc caa att gag atg 458
 Thr Ser Gln Arg Glu Gly Asn Ser Gly Gly Lys Ile Gln Ile Glu Met
 93 98 103 108
 gag act gtt cca gaa gca gga cca cat gaa gag tgg tcc tgt cag caa 506
 Glu Thr Val Pro Glu Ala Gly Pro His Glu Glu Trp Ser Cys Gln Gln
 109 114 119 124

ata tgg gaa caa att gca agt gac cta acc agg tct caa aac tcc ata	554
Ile Trp Glu Gln Ile Ala Ser Asp Leu Thr Arg Ser Gln Asn Ser Ile	
125 130 135 140	
agg aac agc tct cag ttc ttc aaa gaa ggt gat gtc ccc tgc cag att	602
Arg Asn Ser Ser Gln Phe Phe Lys Glu Gly Asp Val Pro Cys Gln Ile	
141 146 151 156	
gag gca aga cta tct ata agt cac gtg caa cag aaa cct tac cgt tgt	650
Glu Ala Arg Leu Ser Ile Ser His Val Gln Gln Lys Pro Tyr Arg Cys	
157 162 167 172	
aat gaa tgt aaa cag tcc atc agt gat gtt tct gtc ttt gat ctt cat	698
Asn Glu Cys Lys Gln Ser Ile Ser Asp Val Ser Val Phe Asp Leu His	
173 178 183 188	
caa caa tca cac tca gga gag aaa tct cat aca tgt ggt gag tgt gga	746
Gln Gln Ser His Ser Gly Glu Lys Ser His Thr Cys Gly Glu Cys Gly	
189 194 199 204	
aaa agc ttc tgt tac agc cca gcc ctt cat att cat cag aga gtc cat	794
Lys Ser Phe Cys Tyr Ser Pro Ala Leu His Ile His Gln Arg Val His	
205 210 215 220	
atg gga gaa aaa tgc tat aag tgt gat gtg tgt ggt aag gaa ttt aat	842
Met Gly Glu Lys Cys Tyr Lys Cys Asp Val Cys Gly Lys Glu Phe Asn	
221 226 231 236	
cag agc tca cat ctg caa act cat cag aga gtc cat act gga gag aaa	890
Gln Ser Ser His Leu Gln Thr His Gln Arg Val His Thr Gly Glu Lys	
237 242 247 252	
cca ttc aaa cgt ggg caa tgt ggg aaa ggc ttc cat agt aga tca gca	938
Pro Phe Lys Arg Gly Gln Cys Gly Lys Gly Phe His Ser Arg Ser Ala	
253 258 263 268	
ctt aat gtt cat tgc aaa ttg cac aca gga gag aaa cct tat aat tgt	986
Leu Asn Val His Cys Lys Leu His Thr Gly Glu Lys Pro Tyr Asn Cys	
269 274 279 284	
gag gaa tgt ggg aaa gcc ttc att cat gat tca cag ctc cag gaa cat	1034
Glu Glu Cys Gly Lys Ala Phe Ile His Asp Ser Gln Leu Gln Glu His	
285 290 295 300	
cag aga atc cat act ggg gag aag cca ttc aaa tgt gat ata tgt ggt	1082
Gln Arg Ile His Thr Gly Glu Lys Pro Phe Lys Cys Asp Ile Cys Gly	
301 306 311 316	
aag agc ttc cgt gtt aga tca aga ctt aat agg cat tcc atg gtt cac	1130
Lys Ser Phe Arg Val Arg Ser Arg Leu Asn Arg His Ser Met Val His	
317 322 327 332	
aca gga gaa aaa cca ttc aga tgt gat aca tgt ggc aag aac ttt cgt	1178
Thr Gly Glu Lys Pro Phe Arg Cys Asp Thr Cys Gly Lys Asn Phe Arg	
333 338 343 348	
cag aga tca gca ctt aat agt cat tcc atg gtc cac ata gaa gag aag	1226

573	578	583	588	
cca ttg aaa tct gga gtg tgg gaa gag atc tac tca gaa ttc aca gct				1946
Pro Leu Lys Ser Gly Val Trp Glu Glu Ile Tyr Ser Glu Phe Thr Ala				
589	594	599	604	
tca ttt aca tca gta agt cta tgt ggg aga aaa gcc ata taa				1988
Ser Phe Thr Ser Val Ser Leu Cys Gly Arg Lys Ala Ile *				
605	610	615		

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aacggcgcca ggtgaaggga ggtgacggag tgtgcccgcg cgcgcggggg tcccctcagt	180
cccagcagtt cccttcgtgc gcggggggcg gcgaggggtct tcagcagtcg ggagaggccc	240
ttgacggcgc c atg tcg gcg ggc ggt cca tgc cca gca gca gcc gga ggg	290
Met Ser Ala Gly Gly Pro Cys Pro Ala Ala Ala Gly Gly	
1 5 10	
ggc cca ggg ggc gcc tcc tgc tcc gtg ggg gcc cct ggc ggg gta tcc	338
Gly Pro Gly Gly Ala Ser Cys Ser Val Gly Ala Pro Gly Gly Val Ser	
14 19 24 29	
atg ttc cgg tgg ctg gag gtg ctg gag aag gag ttc gac aaa gct ttt	386
Met Phe Arg Trp Leu Glu Val Leu Glu Lys Glu Phe Asp Lys Ala Phe	
30 35 40 45	
gtg gat gtg gat ctg ctc ctg gga gag atc gat cca gac caa gcg gac	434
Val Asp Val Asp Leu Leu Gly Glu Ile Asp Pro Asp Gln Ala Asp	
46 51 56 61	
atc act tat gag ggg cga cag aag atg acc agc ctg agc tcc tgc ttt	482
Ile Thr Tyr Glu Gly Arg Gln Lys Met Thr Ser Leu Ser Ser Cys Phe	
62 67 72 77	

gca cag ctt tgc cac aaa gcc cag tct gtg tct caa atc aac cac aag Ala Gln Leu Cys His Lys Ala Gln Ser Val Ser Gln Ile Asn His Lys 78 83 88 93	530
ctg gag gca cag ttg gtg gat ctg aaa tct gaa ctg aca gaa acc caa Leu Glu Ala Gln Leu Val Asp Leu Lys Ser Glu Leu Thr Glu Thr Gln 94 99 104 109	578
gca gag aaa gtt gtt ttg gag aaa gaa gta cat gat cag ctt tta cag Ala Glu Lys Val Val Leu Glu Lys Glu Val His Asp Gln Leu Leu Gln 110 115 120 125	626
ctg cac tct att cag ctg cag ctt cat gct aaa act ggt caa agt gct Leu His Ser Ile Gln Leu Gln Leu His Ala Lys Thr Gly Gln Ser Ala 126 131 136 141	674
gac tct ggt acc att aag gca aaa ttg gaa aga gag ctt gag gca aac Asp Ser Gly Thr Ile Lys Ala Lys Leu Glu Arg Glu Leu Glu Ala Asn 142 147 152 157	722
aaa aaa gaa aaa atg aaa gaa gca caa ctt gaa gct gaa gtg aaa ttg Lys Lys Glu Lys Met Lys Glu Ala Gln Leu Glu Ala Glu Val Lys Leu 158 163 168 173	770
ttg aga aaa gag aat gaa gcc ctt cgt aga cat ata gct gtt ctc cag Leu Arg Lys Glu Asn Glu Ala Leu Arg Arg His Ile Ala Val Leu Gln 174 179 184 189	818
gct gaa gta tat ggg gcg aga cta gct gcc aag tac ttg gat aag gaa Ala Glu Val Tyr Gly Ala Arg Leu Ala Ala Lys Tyr Leu Asp Lys Glu 190 195 200 205	866
ctg gca gga agg gtc caa cag ata caa ttg cta gga cga gat atg aag Leu Ala Gly Arg Val Gln Gln Ile Gln Leu Leu Gly Arg Asp Met Lys 206 211 216 221	914
gga cct gct cat gat aag ctt tgg aac caa tta gaa gct gaa ata cat Gly Pro Ala His Asp Lys Leu Trp Asn Gln Leu Glu Ala Glu Ile His 222 227 232 237	962
ttg cat cgt cac aaa act gtg atc cga gcc tgc aga gga cgt aat gac Leu His Arg His Lys Thr Val Ile Arg Ala Cys Arg Gly Arg Asn Asp 238 243 248 253	1010
ttg aaa cga cca atg caa gca cca cca ggc cat gat caa gat tcc cta Leu Lys Arg Pro Met Gln Ala Pro Pro Gly His Asp Gln Asp Ser Leu 254 259 264 269	1058
aag aaa agc caa ggt gtt ggt cca att aga aaa agt tct cct cct taa Lys Lys Ser Gln Gly Val Gly Pro Ile Arg Lys Ser Ser Pro Pro * 270 275 280 285	1106
ggaagatcat gaaggccttg gcatttcaat tacaggtggg aaagaacatg gtgttccaat	1166
cctcatctct gagatccatc cggggcaacc tgctgataga tgcggagggc tgcacgttgg	1226
ggatgctatt ttggcagtca acggagttaa cctaaggagac acaaagcata aagaagctgt	1286


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aactattctt tctcagcaga gaggagagat tgaatttgaa gtagtttatg tggctcctga 1346
agtggattct gatgatgaaa acgtagagta tgaagatgag agtggacatc gttaccgttt 1406
gtaccttgat gagttagaag gaggtggtaa ccctgggtgct agttgcaaag acacaagtgg 1466
ggaaatcaaa gtattacaag gatttaataa gaaggcagta actgacacac atgaaaatgg 1526
agacctgggc actgcaagtg aaactccgct agatgacggt gcttcaaaat tagatgatct 1586
gcacactctg tatcataaaa aatcttatta aattgaccat atctccagac aagattgtta 1646
atcagactat tctgaatttg gggcactggg g 1677

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<211> 1809
<212> DNA
<213> Homo sapiens

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<222> (360)..(1487)

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tttgattggc ttaaaatttt gcaaccgccc ggacaaactt gccgaggatt ggctgagcct 180
tcagttttga aaatcatagt ttctgcccgc gctgcgccgc ctggttgctc ctcccgctgcg 240
gtgagtcccg aaggcccgga gccaaagtggg tctgggcaag cggggcctta cctagggata 300

ccaccggact tggatcggag cagccttcag gggacgtggc gcagtcgaac agagccacc 359
atg ggg acg acg gcc cca ggg ccc att cac ctg ctg gag cta tgt gac 407
Met Gly Thr Thr Ala Pro Gly Pro Ile His Leu Leu Glu Leu Cys Asp
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Phe Ser Lys Glu Pro Glu Leu Met Pro Lys Thr Pro Ser Gln Lys Asn
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tgt acc ata gtg att ggg gaa ttc cag ttt aaa gct cat agg aat gtg 209
Cys Thr Ile Val Ile Gly Glu Phe Gln Phe Lys Ala His Arg Asn Val
26 31 36 41

ctg gcc tcc ttt agt gag tat ttt ggt gcg atc tac aga agc act tct 257
Leu Ala Ser Phe Ser Glu Tyr Phe Gly Ala Ile Tyr Arg Ser Thr Ser
42 47 52 57

gag aac aat gtc ttt ctt gat cag agt cag gtg aag gct gat gga ttt 305
Glu Asn Asn Val Phe Leu Asp Gln Ser Gln Val Lys Ala Asp Gly Phe
58 63 68 73

cag aaa ctg ttg gag ttt ata tac aca gga act tta aat ctt gac agt 353
Gln Lys Leu Leu Glu Phe Ile Tyr Thr Gly Thr Leu Asn Leu Asp Ser
74 79 84 89

tgg aat gtt aaa gaa att cat cag gct gct gac tat ctc aaa gtg gaa 401
Trp Asn Val Lys Glu Ile His Gln Ala Ala Asp Tyr Leu Lys Val Glu
90 95 100 105

gag gtg gtc act aaa tgc aaa ata aag atg gaa gat ttt gct ttt att 449
Glu Val Val Thr Lys Cys Lys Ile Lys Met Glu Asp Phe Ala Phe Ile
106 111 116 121

gct aat cct tct tct aca gag ata tct agt att act gga aac att gaa 497
Ala Asn Pro Ser Ser Thr Glu Ile Ser Ser Ile Thr Gly Asn Ile Glu
122 127 132 137

ttg aat caa cag act tgt ctt ctt act ctg cga gat tat aat aat cga 545
Leu Asn Gln Gln Thr Cys Leu Leu Thr Leu Arg Asp Tyr Asn Asn Arg
138 143 148 153

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ttc aac tcc ccg aaa aca ggg cag aat aaa aca gtg caa tat ccc agt Phe Asn Ser Pro Lys Thr Gly Gln Asn Lys Thr Val Gln Tyr Pro Ser 186 191 196 201	689
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gaa ctc gag ttg aca tca gtt gtg gaa aat act ttt cca gca caa gat Glu Leu Glu Leu Thr Ser Val Val Glu Asn Thr Phe Pro Ala Gln Asp 234 239 244 249	833
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aac tgt gct ctg aaa gaa cac tct atg tct aat ata gcc agc gtc aag Asn Cys Ala Leu Lys Glu His Ser Met Ser Asn Ile Ala Ser Val Lys 266 271 276 281	929
agt cct tat gag gcg gag aac tcc ggg gaa gag ctg gat cag agg tat Ser Pro Tyr Glu Ala Glu Asn Ser Gly Glu Glu Leu Asp Gln Arg Tyr 282 287 292 297	977
tcc aag gcc aag cca atg tgt aac aca tgt ggg aaa gtg ttt tca gaa Ser Lys Ala Lys Pro Met Cys Asn Thr Cys Gly Lys Val Phe Ser Glu 298 303 308 313	1025
gcc agc agt ttg aga agg cac atg aga ata cat aaa gga gtc aaa cct Ala Ser Ser Leu Arg Arg His Met Arg Ile His Lys Gly Val Lys Pro 314 319 324 329	1073
tac gtc tgc cac tta tgt gga aag gca ttt acc caa tgt aac cag ctg Tyr Val Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Asn Gln Leu 330 335 340 345	1121
aaa acg cat gta aga act cat aca ggt gag aag cca tac aaa tgt gaa Lys Thr His Val Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Glu 346 351 356 361	1169
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cgc atg cat cat ggt gaa gaa aaa ccc tat aaa tgt gat gta tgc aac	1265

Arg Met His His Gly Glu Glu Lys Pro Tyr Lys Cys Asp Val Cys Asn	
378 383 388 393	
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Leu Gln Phe Ala Thr Ser Ser Asn Leu Lys Ile His Ala Arg Lys His	
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Ser Gly Glu Lys Pro Tyr Val Cys Asp Arg Cys Gly Gln Arg Phe Ala	
410 415 420 425	
caa gcc agc aca ctg acc tat cat gtc cgt agg gca tta ctg gga gaa	1409
Gln Ala Ser Thr Leu Thr Tyr His Val Arg Arg Ala Leu Leu Gly Glu	
426 431 436 441	
aag cct tat gta tgt gat acc tgt ggg aag gca ttt gct gtc tct agt	1457
Lys Pro Tyr Val Cys Asp Thr Cys Gly Lys Ala Phe Ala Val Ser Ser	
442 447 452 457	
tct ctt atc act cat tct cga aaa cat aca ggt gaa aaa cca tac ata	1505
Ser Leu Ile Thr His Ser Arg Lys His Thr Gly Glu Lys Pro Tyr Ile	
458 463 468 473	
tgt ggt att tgt ggg aaa agt ttt att tcc tca gga gag ctc aac aaa	1553
Cys Gly Ile Cys Gly Lys Ser Phe Ile Ser Ser Gly Glu Leu Asn Lys	
474 479 484 489	
cac ttt cgg tcc cat aca gga gaa aga cca ttt atc tgc gaa tta tgt	1601
His Phe Arg Ser His Thr Gly Glu Arg Pro Phe Ile Cys Glu Leu Cys	
490 495 500 505	
gga aat tct tac aca gat att aaa aat tta aag aag cac aaa aca aaa	1649
Gly Asn Ser Tyr Thr Asp Ile Lys Asn Leu Lys Lys His Lys Thr Lys	
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gtc cat tct ggt gca gat aaa act cta gac tcc agt gca gag gat cat	1697
Val His Ser Gly Ala Asp Lys Thr Leu Asp Ser Ser Ala Glu Asp His	
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Thr Leu Ser Glu Gln Asp Ser Ile Gln Lys Ser Pro Leu Ser Glu Thr	
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Met Asp Val Lys Pro Ser Asp Met Thr Leu Pro Leu Ala Leu Pro Leu	
554 559 564 569	
ggg act gag gac cat cac atg ctt ctg cct gtc acg gat act cag tct	1841
Gly Thr Glu Asp His His Met Leu Leu Pro Val Thr Asp Thr Gln Ser	
570 575 580 585	
cct aca tca gat aca ttg ttg agg tca act gtg aat ggg tat tca gaa	1889
Pro Thr Ser Asp Thr Leu Leu Arg Ser Thr Val Asn Gly Tyr Ser Glu	
586 591 596 601	
cca cag ttg att ttt tta caa caa tta tac tga ctttgtaa ggaatatgga	1940
Pro Gln Leu Ile Phe Leu Gln Gln Leu Tyr *	

602

607

612

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<210> 1085

<211> 2817

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (109) .. (2817)

<400> 1085

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 Met Ala Ser
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tgt gct gaa ccc tct gag ccc tct gcc cca ctg ccc gcc ggg gtc cca 165
 Cys Ala Glu Pro Ser Glu Pro Ser Ala Pro Leu Pro Ala Gly Val Pro

4	9	14	19	
ccg ctc gag gac ttc	gag gta ctg gat	ggg gtt gag gat	gca cag ggt	213
Pro Leu Glu Asp Phe	Glu Val Leu Asp Gly	Val Glu Asp Ala	Gln Glu Gly	
20	25	30	35	
gag gag gaa gag gag	gag gaa gag gag	gaa gag gat gac	ctg agt gag	261
Glu Glu Glu Glu Glu	Glu Glu Glu Glu Glu	Glu Asp Asp Leu	Ser Glu	
36	41	46	51	
ctg cca ccg ttg gag	gag act ggg gag	ggc cgg cgg ggc	gcg gag gag	309
Leu Pro Pro Leu Glu	Glu Thr Gly Glu	Gly Arg Arg Gly	Ala Glu Glu	
52	57	62	67	
gag gat ctg ggg gaa	gag gag gag gag	ggc cag gcg cac	ctg gag gac	357
Glu Asp Leu Gly Glu	Glu Glu Glu Glu	Gly Gln Ala His	Leu Glu Asp	
68	73	78	83	
tgg agg ggg cag ctc	agt gag ctt ctg	aac gac ttt gag	gag agg ctt	405
Trp Arg Gly Gln Leu	Ser Glu Leu Leu	Asn Asp Phe Glu	Glu Arg Leu	
84	89	94	99	
gaa gac cag gaa cgc	ctg aaa ccc gaa	gga caa aga gaa	cac tcc gag	453
Glu Asp Gln Glu Arg	Leu Lys Pro Glu	Gly Gln Arg Glu	His Ser Glu	
100	105	110	115	
gag cca ggt att tgc	gag gag cag aac	cca gag gcc gag	cgg cga aga	501
Glu Pro Gly Ile Cys	Glu Glu Gln Asn	Pro Glu Ala Glu	Arg Arg Arg	
116	121	126	131	
gag cag cag gga agg	agc ggg gat ttc	cag ggg gcc gat	cgt cct ggg	549
Glu Gln Gln Gly Arg	Ser Gly Asp Phe	Gln Gly Ala Asp	Arg Pro Gly	
132	137	142	147	
ccc gag gaa aag aga	gaa gaa ggg gac	acg gag cct ctc	ctg aaa caa	597
Pro Glu Glu Lys Arg	Glu Glu Gly Asp	Thr Glu Pro Leu	Leu Lys Gln	
148	153	158	163	
gag ggg ccg gtg gaa	gcc gcg cag cct	ccg gtg gag agg	aaa gaa gcc	645
Glu Gly Pro Val Glu	Ala Ala Gln Pro	Pro Val Glu Arg	Lys Glu Ala	
164	169	174	179	
gcc gcc ctt gaa caa	ggc cgc aag gtg	gag gag ctg cgg	tgg cag gag	693
Ala Ala Leu Glu Gln	Gly Arg Lys Val	Glu Glu Leu Arg	Trp Gln Glu	
180	185	190	195	
gtg gac gag aga cag	acc atg ccc cgg	ccc tac acg ttc	cag gtg tcc	741
Val Asp Glu Arg Gln	Thr Met Pro Arg	Pro Tyr Thr Phe	Gln Val Ser	
196	201	206	211	
tcc gga ggg aag cag	att ctc ttt ccc	aaa gtc aac ctg	agc ccc gtg	789
Ser Gly Gly Lys Gln	Ile Leu Phe Pro	Lys Val Asn Leu	Ser Pro Val	
212	217	222	227	
acg ccc gca aag gac	acg ggg ctc acc	gct gct ccc cag	gaa cca aag	837
Thr Pro Ala Lys Asp	Thr Gly Leu Thr	Ala Ala Pro Gln	Glu Pro Lys	
228	233	238	243	

gcc ccc aaa gcc agc cca gtc cag cac gcc cta ccg tcc tcc ctg agc	885
Ala Pro Lys Ala Ser Pro Val Gln His Ala Leu Pro Ser Ser Leu Ser	
244 249 254 259	
ggt ccc cac acc gcc att ctg gtc acg ggc gcg cag ctc tgt ggc ccg	933
Val Pro His Thr Ala Ile Leu Val Thr Gly Ala Gln Leu Cys Gly Pro	
260 265 270 275	
gca gtc aac ctg agc cag atc aag gac acc gcg tgc aag tcc ctc ctg	981
Ala Val Asn Leu Ser Gln Ile Lys Asp Thr Ala Cys Lys Ser Leu Leu	
276 281 286 291	
ggc ttg gag gag aag aag cac gcg gaa gcc cca gct ^h ggg gag aac cct	1029
Gly Leu Glu Glu Lys Lys His Ala Glu Ala Pro Ala Gly Glu Asn Pro	
292 297 302 307	
ccc cga ggc ccc ggc gac gcg agg gcg ggc agc ggg aag gct aag ccc	1077
Pro Arg Gly Pro Gly Asp Ala Arg Ala Gly Ser Gly Lys Ala Lys Pro	
308 313 318 323	
ccc cag gag tct ccc agc agc gcg tcc gca ctc gca gaa tgg gct tcc	1125
Pro Gln Glu Ser Pro Ser Ser Ala Ser Ala Leu Ala Glu Trp Ala Ser	
324 329 334 339	
att cgg tcc aga atc ctg aag aac gca gag agt gac ccg cgc agc agc	1173
Ile Arg Ser Arg Ile Leu Lys Asn Ala Glu Ser Asp Pro Arg Ser Ser	
340 345 350 355	
gag agg gac cag ttg agg ccc ggt gat gag tcc act ccc agg ggc ccg	1221
Glu Arg Asp Gln Leu Arg Pro Gly Asp Glu Ser Thr Pro Arg Gly Arg	
356 361 366 371	
tgt gat tcc cgc ggg aac caa cgg aag act ccg cca gtc aat gca aag	1269
Cys Asp Ser Arg Gly Asn Gln Arg Lys Thr Pro Pro Val Asn Ala Lys	
372 377 382 387	
ttc tct att atg cct gcc tgg cag aaa ttt tcc gat ggt ggc acg gag	1317
Phe Ser Ile Met Pro Ala Trp Gln Lys Phe Ser Asp Gly Gly Thr Glu	
388 393 398 403	
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Thr Ser Lys Gln Ser Thr Glu Ala Glu Ser Ile Arg Lys Arg Pro Met	
404 409 414 419	
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Leu Gly Pro Ser Glu Glu Thr Ala Pro Gln Pro Pro Pro Ala Gly Val	
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cgc gag ctc ggg aag ggt ccg gag aag tcc gag atg cac cgg gag ccc	1461
Arg Glu Leu Gly Lys Gly Pro Glu Lys Ser Glu Met His Arg Glu Pro	
436 441 446 451	
gca gac acc acc gag gga tgc aaa ttt gcc aaa gac ctc ccg tct ttc	1509
Ala Asp Thr Thr Glu Gly Cys Lys Phe Ala Lys Asp Leu Pro Ser Phe	
452 457 462 467	

ctt gtc cca agc ctt cct tac cct ccg cag aaa gtg gtg gcc cac aca	1557
Leu Val Pro Ser Leu Pro Tyr Pro Pro Gln Lys Val Val Ala His Thr	
468 473 478 483	
gag ttc acg acc tcg tcg gac agc gag act gca aac ggg ata gca aag	1605
Glu Phe Thr Thr Ser Ser Asp Ser Glu Thr Ala Asn Gly Ile Ala Lys	
484 489 494 499	
cca gac cct gtg atg cca ggt gga gag gaa aaa gcc tca ccg ttt gga	1653
Pro Asp Pro Val Met Pro Gly Gly Glu Glu Lys Ala Ser Pro Phe Gly	
500 505 510 515	
ata aaa ttg aga agg acc aac tat tcc ttg cgc ttc aac tgc gac caa	1701
Ile Lys Leu Arg Arg Thr Asn Tyr Ser Leu Arg Phe Asn Cys Asp Gln	
516 521 526 531	
cag gca gaa cag aag aag aag aag agg cac agc agc acc gga gac agc	1749
Gln Ala Glu Gln Lys Lys Lys Lys Arg His Ser Ser Thr Gly Asp Ser	
532 537 542 547	
gcg gat gca ggg ccg cct gca gcg ggg agc gct cgt gga gag aaa gag	1797
Ala Asp Ala Gly Pro Pro Ala Ala Gly Ser Ala Arg Gly Glu Lys Glu	
548 553 558 563	
atg gag ggt gtg gcc ctc aag cat ggt cca tcc ctc ccc caa gag cgg	1845
Met Glu Gly Val Ala Leu Lys His Gly Pro Ser Leu Pro Gln Glu Arg	
564 569 574 579	
aag caa gcc cct tcc acc cgg agg gac tcc gct gaa cct tcc agc agc	1893
Lys Gln Ala Pro Ser Thr Arg Arg Asp Ser Ala Glu Pro Ser Ser Ser	
580 585 590 595	
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Arg Ser Val Pro Val Ala His Pro Gly Pro Pro Pro Ala Ser Ser Gln	
596 601 606 611	
acc ccg gct ccg gag cac gac aag gca gca aac aaa atg cca ctg gca	1989
Thr Pro Ala Pro Glu His Asp Lys Ala Ala Asn Lys Met Pro Leu Ala	
612 617 622 627	
caa aag cca gca ctg gct ccc aag ccc acc agt cag acc cca cca gca	2037
Gln Lys Pro Ala Leu Ala Pro Lys Pro Thr Ser Gln Thr Pro Pro Ala	
628 633 638 643	
tcc cca ctt tcc aaa ctg agc agg ccc tac ttg gta gag ctg ctg tct	2085
Ser Pro Leu Ser Lys Leu Ser Arg Pro Tyr Leu Val Glu Leu Leu Ser	
644 649 654 659	
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Arg Arg Ala Gly Arg Pro Asp Pro Glu Pro Ser Glu Pro Ser Lys Glu	
660 665 670 675	
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 <213> Homo sapiens

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 <222> (50)..(436)

<400> 1086

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Cys Leu His Lys Ser Arg Ile Ala Asp Leu Gln Asp Val Leu Lys Glu
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ccc tca att gca ttg gaa aag ctg cgg gaa ctc agc ttt agt ggc atc   151
Pro Ser Ile Ala Leu Glu Lys Leu Arg Glu Leu Ser Phe Ser Gly Ile
  19                               24                               29                               34

ccc tgt gag ggc gga ctg cgg tgc ctc tgc tgg aag att ctc ttg aac   199
Pro Cys Glu Gly Gly Leu Arg Cys Leu Cys Trp Lys Ile Leu Leu Asn
  35                               40                               45                               50

tac ctt ccc ttg gag agg gcc tca tgg acc tcc atc ctg gcc aag cag   247
Tyr Leu Pro Leu Glu Arg Ala Ser Trp Thr Ser Ile Leu Ala Lys Gln
  51                               56                               61                               66

agg gag ctg tat gcc cag ttc ctg agg gaa atg atc atc cag cct ggc   295
Arg Glu Leu Tyr Ala Gln Phe Leu Arg Glu Met Ile Ile Gln Pro Gly
  67                               72                               77                               82

att gcc aag gcc aac atg ggt gtg tcc agg gag gat gtg act ttt gag   343
Ile Ala Lys Ala Asn Met Gly Val Ser Arg Glu Asp Val Thr Phe Glu
  83                               88                               93                               98

gac cat tca ctc aac ccc aac cct gac agc cgg tgg aac acg tac ttc   391
Asp His Ser Leu Asn Pro Asn Pro Asp Ser Arg Trp Asn Thr Tyr Phe
  99                               104                               109                               114

aag gac aac gag gtg ctg ctg cag atc gac aaa gat gtc cgg tag g   437
Lys Asp Asn Glu Val Leu Leu Gln Ile Asp Lys Asp Val Arg *
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<220>

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<222> (1716)..(1856)

<400> 1087

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acaggaatgg tagtgctatt ggccttcag tcccacctat cacagcctta atcaccacag	540
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Met Val Trp Met Ser Leu	
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Gly Pro Lys Ile Phe Trp Tyr Ile Leu Val Pro Phe Leu His Pro Phe	
7 12 17 22	
aga agt act tct gca gct gga atg gtc ctt cag aga aca ctc agt tct	1829
Arg Ser Thr Ser Ala Ala Gly Met Val Leu Gln Arg Thr Leu Ser Ser	
23 28 33 38	
tct aga aag gag aca ctt aaa ata taa ttgcc tctccctccc atccctaact	1881
Ser Arg Lys Glu Thr Leu Lys Ile *	
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Met Ala Leu	
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Glu Glu Trp Lys Ser Leu Asp Pro Val Gln Lys Ala Leu Tyr Trp Asp	
20 25 30 35	
gtg atg ttg gag aac tac agg aac ctg gtc ttc ctg ggt aag gat aat	681
Val Met Leu Glu Asn Tyr Arg Asn Leu Val Phe Leu Gly Lys Asp Asn	
36 41 46 51	
ttt gct cta gaa gtt aag atc tgc cct cgt gta ttt ttg tat ttt ctc	729
Phe Ala Leu Glu Val Lys Ile Cys Pro Arg Val Phe Leu Tyr Phe Leu	
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Cys Cys Leu Ser Trp Glu Pro Phe His Tyr Leu Thr Glu Thr Glu Ala	
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1 5 10

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Leu Leu Phe Ser His Leu Ser Ala Val Gln Thr Arg Gly Ile Lys His
16 21 26 31

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Arg Ile Lys Trp Asn Arg Lys Ala Leu Pro Ser Thr Ala Gln Ile Thr
32 37 42 47

gag gcc cag gtg gct gag aac cgc ccg gga gcc ttc atc aag caa ggc 253
Glu Ala Gln Val Ala Glu Asn Arg Pro Gly Ala Phe Ile Lys Gln Gly
48 53 58 63

cgc aag ctc gac att gac ttc gga gcc gag ggc aac agg tac tac gag 301
Arg Lys Leu Asp Ile Asp Phe Gly Ala Glu Gly Asn Arg Tyr Tyr Glu
64 69 74 79

gcc aac tac tgg cag ttc ccc gat ggc atc cac tac aac ggc tgc tct 349
Ala Asn Tyr Trp Gln Phe Pro Asp Gly Ile His Tyr Asn Gly Cys Ser
80 85 90 95

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Glu Ala Asn Val Thr Lys Glu Ala Phe Val Thr Gly Cys Ile Asn Ala
96 101 106 111

acc cag gcg gcg aac cag ggg gag ttc cag aag cca gac aac aag ctc 445
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112 117 122 127

cac cag cag gtg ctc tgg cgg ctg gtc cag gag ctc tgc tcc ctc aag 493
His Gln Gln Val Leu Trp Arg Leu Val Gln Glu Leu Cys Ser Leu Lys
128 133 138 143

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His Cys Glu Phe Trp Leu Glu Arg Gly Ala Gly Leu Arg Val Thr Met
144 149 154 159

cac cag cca gtg ctc ctc tgc ctt ctg gct ttg atc tgg ctc acg gtg 589
His Gln Pro Val Leu Leu Cys Leu Leu Ala Leu Ile Trp Leu Thr Val
160 165 170 175

aaa taa gcttgccagg aggctggcag tacagagtgc agcagcgagc aaatcctggc 645
Lys *
176

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gggcaacgag aagacc      atg aac ctc aac ccc atg atc ctg acc aac atc      229
                        Met Asn Leu Asn Pro Met Ile Leu Thr Asn Ile
                        1          5

ctg tgc tgc cct tac ttc aaa gta cag ctc tac gag ctc aag acc tac      277
Leu Ser Ser Pro Tyr Phe Lys Val Gln Leu Tyr Glu Leu Lys Thr Tyr
 12          17          22          27

cac gag gtg gtg gac gag atc tac ttt aag gtc acg cac gtt gaa cca      325
His Glu Val Val Asp Glu Ile Tyr Phe Lys Val Thr His Val Glu Pro
 28          33          38          43

tgg gag aaa gga agc agg aaa aca gcg ggc cag aca ggg atg tgc gga      373
Trp Glu Lys Gly Ser Arg Lys Thr Ala Gly Gln Thr Gly Met Cys Gly
 44          49          54          59

ggg gtt cga ggt gtt gga aca gga gga att gtt tct aca gca ttt tgc      421
Gly Val Arg Gly Val Gly Thr Gly Gly Ile Val Ser Thr Ala Phe Cys
 60          65          70          75

ctg tta tac aaa tta ttt acc ctg aag tta act cga aag caa gtg atg      469
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Gly Leu Ile Thr His Thr Asp Ser Pro Tyr Ile Arg Ala Leu Gly Phe
 92          97          102          107

atg tat ata aga tat aca cag ccc cct aca gat ctg tgg gac tgg ttt      565
Met Tyr Ile Arg Tyr Thr Gln Pro Pro Thr Asp Leu Trp Asp Trp Phe
108          113          118          123

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Glu Ser Phe Leu Asp Asp Glu Glu Asp Leu Asp Val Lys Ala Gly Gly
124          129          134          139

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Gly Cys Val Met Thr Ile Gly Glu Met Leu Arg Ser Phe Leu Thr Lys
140          145          150          155

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Lys Asn Ile Asp Gln Gln Ile Lys Thr Arg Pro Arg Lys Ile Lys Lys	
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Asp Gly Lys Glu Gly Ala Glu Glu Ile Asp Arg His Val Glu Arg Arg	
188 193 198 203	
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Asp Lys Glu Arg Gly Asn Glu Arg Glu Lys Glu Arg Glu Arg Ser Arg	
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332 337 342 347	
cat aaa gaa gac aaa gat gat agg cgg cac aga gat gac aaa aga gat	1285
His Lys Glu Asp Lys Asp Asp Arg Arg His Arg Asp Asp Lys Arg Asp	
348 353 358 363	
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Ser Lys Lys Glu Lys Lys His Ser Arg Ser Arg Ser Arg Glu Arg Lys	
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His Arg Ser Arg Ser Arg Ser Arg Asn Ala Gly Lys Arg Ser Arg Ser	
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			1 5			
cga gat atg cca gcc aat cat cag aca ttc cta cga caa aga act ttt	701					
Arg Asp Met Pro Ala Asn His Gln Thr Phe Leu Arg Gln Arg Thr Phe						
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Ile Arg His Thr Glu Glu Arg Leu Leu Arg Tyr Leu Ile His Leu Arg						
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Arg Cys *						
105						
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Ala Glu Val Glu Lys Tyr Lys Asp Cys Asp Pro Gln Val Val Glu Glu	
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Ile Arg Gln Ala Asn Lys Val Ala Lys Glu Ala Ala Asn Arg Trp Thr	
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172 177 182 187	
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Tyr Ile Asp *	
188	
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 Val Tyr Pro Ser Tyr Pro Asp Leu Val Ile Asp Val Gly Glu Val Thr
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 ctg gga gaa gaa aac aga aaa aag cta cag aaa act cag aga gac caa 326
 Leu Gly Glu Glu Asn Arg Lys Lys Leu Gln Lys Thr Gln Arg Asp Gln
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 Gly Gly Val Ile Gln Met Glu Met Ala Asn Arg Asp Glu Arg Pro Thr
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 74 79 84 89
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 Pro Tyr Leu Gln Ala Phe Phe Glu Thr Lys Gln His Gly Arg Cys Phe
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Met Thr Ser Lys Lys Leu Val Asn Ser Val
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Ala Gly Cys Ala Asp Asp Ala Leu Ala Gly Leu Val Ala Cys Asn Pro
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aac ctg cag ctc ctg cag ggc cac cgc gtg gcc ctc cgt tct gac ctg 327
Asn Leu Gln Leu Leu Gln Gly His Arg Val Ala Leu Arg Ser Asp Leu
27 32 37 42
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43 48 53 58
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Val Ile Ala Gly Ala Val Phe Thr Ser Pro Ala Val Gly Ser Ile Leu
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gca gcc atc agg gcc gtg gcc cag gcc ggc aca gtg ggg acg ctc ctt 519
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123 128 133 138
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Cys Gly Thr Val Leu Ile His Lys Val Ala Gly Ala Leu Ala Glu Ala
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171 176 181 186

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299 304 309 314	
acc ctc ctg ctg gtg gat gag cct ctc ctg aaa ctg ata gat gct gaa	1191
Thr Leu Leu Leu Val Asp Glu Pro Leu Leu Lys Leu Ile Asp Ala Glu	
315 320 325 330	
acc act gca gca gcc tgg cct aac gtg gct gca gtc tcc att act ggg	1239
Thr Thr Ala Ala Ala Trp Pro Asn Val Ala Ala Val Ser Ile Thr Gly	
331 336 341 346	
cgg aag cgg agc cgg gta gcc cct gcc gag ccc cag gag gcc cct gat	1287
Arg Lys Arg Ser Arg Val Ala Pro Ala Glu Pro Gln Glu Ala Pro Asp	
347 352 357 362	
tcc act gct gca gga ggc tca gcc tcg aag cgg atg gcg ctg gtg ctg	1335
Ser Thr Ala Ala Gly Gly Ser Ala Ser Lys Arg Met Ala Leu Val Leu	
363 368 373 378	
gaa cgg gtg tgc agc act ctc ctg ggc ctg gag gaa cac ctg aat gcc	1383
Glu Arg Val Cys Ser Thr Leu Leu Gly Leu Glu Glu His Leu Asn Ala	
379 384 389 394	
ctg gac cgg gct gct ggt gac ggc gac tgt ggc acc acc cac agc cgt	1431
Leu Asp Arg Ala Ala Gly Asp Gly Asp Cys Gly Thr Thr His Ser Arg	
395 400 405 410	

gcg gcc aga gca atc cag gag tgg ctg aag gag ggc cca ccc cct gcc	1479
Ala Ala Arg Ala Ile Gln Glu Trp Leu Lys Glu Gly Pro Pro Pro Ala	
411 416 421 426	
agc cct gcc cag ctg ctc tcc aag ttg tct gtt ctg ctc ctg gag aag	1527
Ser Pro Ala Gln Leu Leu Ser Lys Leu Ser Val Leu Leu Leu Glu Lys	
427 432 437 442	
atg gga ggc tca tct ggg gcg ctc tat ggc ctg ttc ctg act gcg gct	1575
Met Gly Gly Ser Ser Gly Ala Leu Tyr Gly Leu Phe Leu Thr Ala Ala	
443 448 453 458	
gca cag ccc ctg aag gcc aag acc agc ctc cca gcc tgg tct gct gcc	1623
Ala Gln Pro Leu Lys Ala Lys Thr Ser Leu Pro Ala Trp Ser Ala Ala	
459 464 469 474	
atg gat gcc ggc ctg gaa gcc atg cag aag tat ggc aag gct gct cca	1671
Met Asp Ala Gly Leu Glu Ala Met Gln Lys Tyr Gly Lys Ala Ala Pro	
475 480 485 490	
ggg gac agg act atg ctg gat tct ctg tgg gca gcg ggg cag gag ctc	1719
Gly Asp Arg Thr Met Leu Asp Ser Leu Trp Ala Ala Gly Gln Glu Leu	
491 496 501 506	
caa gcc tgg aag agc cca gga gct gat ctg tta caa gtc ctg acc aaa	1767
Gln Ala Trp Lys Ser Pro Gly Ala Asp Leu Leu Gln Val Leu Thr Lys	
507 512 517 522	
gca gtc aag agt gcc gaa gct gca gcc gag gcc acc aag aat atg gaa	1815
Ala Val Lys Ser Ala Glu Ala Ala Ala Glu Ala Thr Lys Asn Met Glu	
523 528 533 538	
gct gga gcc gga aga gcc agt tat atc agc tca gca cgg ctg gag cag	1863
Ala Gly Ala Gly Arg Ala Ser Tyr Ile Ser Ser Ala Arg Leu Glu Gln	
539 544 549 554	
cca gac ccc ggg gcg gtg gca gct gct gcc atc ctc cgg gcc atc ttg	1911
Pro Asp Pro Gly Ala Val Ala Ala Ala Ala Ile Leu Arg Ala Ile Leu	
555 560 565 570	
gag gtc ttg cag agc tag ggtgtg tgactgcctc ccttgccctc agctcctctc	1965
Glu Val Leu Gln Ser *	
571 576	
actgctgtgc tgagggtggcc tttgtcactt ccttctgcct tccaaccctc accttcccc	2025
ggcctggccc cattggccca ccctctaagt tgagcaggaa atcctccacc aagcttccag	2085
aactacagac agcaccacaga gtgagctgga gtgggtcccc atgcctctcc agcatgccct	2145
ttccctttgc aggagggtgg agtccttggg tcatgccctc ccctgccagc tctgggcttc	2205
agagataagg cattttcctt gtgcagcctt tacctggcaa tcctaatttg gttttaagac	2265
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 <213> Homo sapiens

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 <222> (118)..(708)

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 atg tgg ttc atg tac ctg ctg agc tgg ctg tcg ctc ttc atc cag gtg 165
 Met Trp Phe Met Tyr Leu Leu Ser Trp Leu Ser Leu Phe Ile Gln Val
 1 5 10 15

 gcc ttc atc acg ctg gct gtc gcg gct gga ctc tat tac ctg gca gaa 213
 Ala Phe Ile Thr Leu Ala Val Ala Ala Gly Leu Tyr Tyr Leu Ala Glu
 17 22 27 32

 ctg ata gaa gaa tac aca gtg gcc acc agc agg atc ata aaa tac atg 261
 Leu Ile Glu Glu Tyr Thr Val Ala Thr Ser Arg Ile Ile Lys Tyr Met
 33 38 43 48

 atc tgg ttc tcc acc gct gta ctg att ggc ctc tac gtc ttt gag cgc 309
 Ile Trp Phe Ser Thr Ala Val Leu Ile Gly Leu Tyr Val Phe Glu Arg
 49 54 59 64

 ttc ccc acc agc atg att gga gtg ggc cta ttc acc aac ctc gtc tac 357
 Phe Pro Thr Ser Met Ile Gly Val Gly Leu Phe Thr Asn Leu Val Tyr
 65 70 75 80

 ttt ggc ctc ctc cag acc ttc ccc ttc atc atg ctg acc tcg cct aac 405
 Phe Gly Leu Leu Gln Thr Phe Pro Phe Ile Met Leu Thr Ser Pro Asn
 81 86 91 96

 ttc atc ctg tcg tgt gga cta gtg gtg gtg aat cat tac cta gca ttt 453
 Phe Ile Leu Ser Cys Gly Leu Val Val Val Asn His Tyr Leu Ala Phe
 97 102 107 112

 cag ttt ttt gca gaa gaa tat tat ccc ttc tca gag gtc ctg gcc tat 501
 Gln Phe Phe Ala Glu Glu Tyr Tyr Pro Phe Ser Glu Val Leu Ala Tyr
 113 118 123 128

 ttc act ttc tgc ctg tgg ata att ccg ttt gcg ttt ttt gtg tca ctt 549
 Phe Thr Phe Cys Leu Trp Ile Ile Pro Phe Ala Phe Phe Val Ser Leu
 129 134 139 144

 tcg gcc ggg gag aac gtc ctg ccc tct acc atg cag cca gga gat gat 597
 Ser Ala Gly Glu Asn Val Leu Pro Ser Thr Met Gln Pro Gly Asp Asp
 145 150 155 160

gtc gtc tcc aat tat ttc acc aaa ggc aag cgg ggc aaa cgc tta ggg	645
Val Val Ser Asn Tyr Phe Thr Lys Gly Lys Arg Gly Lys Arg Leu Gly	
161 166 171 176	

atc ctg gtt gtc ttc tcc ttc atc aaa gag gcc att cta ccc agt cgt	693
Ile Leu Val Val Phe Ser Phe Ile Lys Glu Ala Ile Leu Pro Ser Arg	
177 182 187 192	

cag aag ata tac tga ccccatgca ggcaggatgt ggggggcaag atcaggagag	748
Gln Lys Ile Tyr *	
193	

tcaggccccct gggcctctat gccagggtggg gaccagaagt cgggaaggca cctaccacct	808
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gccctggctt tcttccccctc aactctggag ccccatcccc accctccttg gggggctcag	868
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cttggtcag atctgatgct tcaagaggct gtaacctcag agggcaccaa ggagggtggc	928
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agagcctgtt tagccaggag gccgagggtcc ctcatgtctc cctgtccct tccaagggtg	988
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gtcaggaggt tctggccccg ctggggcagg cagggcaggg tctgtgaagc ttaagagcag	1048
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atggtgacaa gttctctggg caggtggcca tggggagggg ccatggcttg gcatgtccaa	1108
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<211> 1937

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (71)..(1495)

<400> 1096

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Met Glu Leu Gly Gly His Trp Asp Met Asn Ser Ala Pro	
1 5 10	

agg ctg gtc tcg gag acc gca gag cgg aaa cag gag cag aag aca gga	157
Arg Leu Val Ser Glu Thr Ala Glu Arg Lys Gln Glu Gln Lys Thr Gly	
14 19 24 29	

acc gag gcg gag gct gcc gac tcc ggt gcc gtc gga gcc cgc cgc ttc	205
Thr Glu Ala Glu Ala Asp Ser Gly Ala Val Gly Ala Arg Arg Phe	
30 35 40 45	

ctg ctc tgt ctc tac ttg ggg ggc ttc ttg gat ttg ttt ggt gtc agc	253
Leu Leu Cys Leu Tyr Leu Gly Gly Phe Leu Asp Leu Phe Gly Val Ser	

46	51	56	61	
atg gtt gtg cct tta ttg agc ctt cat gtc aag tcc ctt gga gca agt				301
Met Val Val Pro Leu Leu Ser Leu His Val Lys Ser Leu Gly Ala Ser				
62	67	72	77	
cca aca gtt gct gga ata gta ggc tcc tcc tat ggc att ttg caa ctc				349
Pro Thr Val Ala Gly Ile Val Gly Ser Ser Tyr Gly Ile Leu Gln Leu				
78	83	88	93	
ttt tct agc aca ttg gtg ggc tgc tgg agc gat gta gtg gga aga cgg				397
Phe Ser Ser Thr Leu Val Gly Cys Trp Ser Asp Val Val Gly Arg Arg				
94	99	104	109	
tct tcc ttg ctg gca tgc att cta ctc agt gct ctg ggc tat ctc ctt				445
Ser Ser Leu Leu Ala Cys Ile Leu Leu Ser Ala Leu Gly Tyr Leu Leu				
110	115	120	125	
ctc gga gca gcc acc aat gtg ttt ctg ttt gtc ctg gct aga gtc ccg				493
Leu Gly Ala Ala Thr Asn Val Phe Leu Phe Val Leu Ala Arg Val Pro				
126	131	136	141	
gca ggt att ttt aaa cac act ctc tcc atc tca agg gct cta ctt tct				541
Ala Gly Ile Phe Lys His Thr Leu Ser Ile Ser Arg Ala Leu Leu Ser				
142	147	152	157	
gat gtg gtt cca gag aag gaa cgg ccg ctt gta atc gga cac ttc aac				589
Asp Val Val Pro Glu Lys Glu Arg Pro Leu Val Ile Gly His Phe Asn				
158	163	168	173	
aca gcc tcc ggt gtg ggc ttc atc ttg ggc ccc gtg gtc ggt ggc tat				637
Thr Ala Ser Gly Val Gly Phe Ile Leu Gly Pro Val Val Gly Gly Tyr				
174	179	184	189	
ctc act gaa tta gag gat ggg ttt tat ctc aca gcc ttc atc tgc ttt				685
Leu Thr Glu Leu Glu Asp Gly Phe Tyr Leu Thr Ala Phe Ile Cys Phe				
190	195	200	205	
ttg gtc ttc att ctc aat gct ggt ctc gtt tgg ttc ttt cca tgg agg				733
Leu Val Phe Ile Leu Asn Ala Gly Leu Val Trp Phe Phe Pro Trp Arg				
206	211	216	221	
gaa gca aaa ccg ggc agt aca gag aag ggc ctg cca ttg cga aag acc				781
Glu Ala Lys Pro Gly Ser Thr Glu Lys Gly Leu Pro Leu Arg Lys Thr				
222	227	232	237	
cat gtg ctg ttg gga agg agc cat gac aca gtg cag gag gca gcc acc				829
His Val Leu Leu Gly Arg Ser His Asp Thr Val Gln Glu Ala Ala Thr				
238	243	248	253	
agc cgc aga gcc agg gcc agc aag aag act gcc cag ccc tgg gtc gaa				877
Ser Arg Arg Ala Arg Ala Ser Lys Lys Thr Ala Gln Pro Trp Val Glu				
254	259	264	269	
gta gtg ttg gcc ttg cgg aac atg aag aac ctg ctg ttt tcc gaa atg				925
Val Val Leu Ala Leu Arg Asn Met Lys Asn Leu Leu Phe Ser Glu Met				
270	275	280	285	

tgg gac ata ttt ctg gtg cgc ttg ctg atg gcc atg gca gtc atg ctg Trp Asp Ile Phe Leu Val Arg Leu Leu Met Ala Met Ala Val Met Leu 286 291 296 301	973
tac tac agt aac ttt gtc ctg gcc ctg gag gag cgc ttt ggg gtg cgg Tyr Tyr Ser Asn Phe Val Leu Ala Leu Glu Glu Arg Phe Gly Val Arg 302 307 312 317	1021
ccc aag gtg aca ggc tac ctc atc agt tac agc agc atg ctg ggg gcc Pro Lys Val Thr Gly Tyr Leu Ile Ser Tyr Ser Ser Met Leu Gly Ala 318 323 328 333	1069
gtg gcc ggc ctt gcc ctg ggg cca atc cta cgg ctg tac aag cac aac Val Ala Gly Leu Ala Leu Gly Pro Ile Leu Arg Leu Tyr Lys His Asn 334 339 344 349	1117
tcg cag gca ctg ctg ctg cat tcc agc ata ctc acc tgc aca ctg ctg Ser Gln Ala Leu Leu Leu His Ser Ser Ile Leu Thr Cys Thr Leu Leu 350 355 360 365	1165
ctg ctc tac tcc ttg gcc ccc acc atg ggt gca gtt gtc ctc tcc tcc Leu Leu Tyr Ser Leu Ala Pro Thr Met Gly Ala Val Val Leu Ser Ser 366 371 376 381	1213
act ctc ctg tcc ttc tcc act gcc att ggc agg acg tgc atc acg gac Thr Leu Leu Ser Phe Ser Thr Ala Ile Gly Arg Thr Cys Ile Thr Asp 382 387 392 397	1261
ctc cag ctg act gtg ggc ggg gcc cag gcc agc ggc acc ctt att ggc Leu Gln Leu Thr Val Gly Gly Ala Gln Ala Ser Gly Thr Leu Ile Gly 398 403 408 413	1309
gtg ggg cag tct gtg act gca gtg ggc cgc atc atc gcc cct ctc ctc Val Gly Gln Ser Val Thr Ala Val Gly Arg Ile Ile Ala Pro Leu Leu 414 419 424 429	1357
tcg ggg gtt gcc cag gag gtc agc cct tgc ggc ccc ccc agc ctg ggc Ser Gly Val Ala Gln Glu Val Ser Pro Cys Gly Pro Pro Ser Leu Gly 430 435 440 445	1405
gct gtg tta gcc tta gtg gcc att ttc ata atg tct cta aac aag cga Ala Val Leu Ala Leu Val Ala Ile Phe Ile Met Ser Leu Asn Lys Arg 446 451 456 461	1453
cac tct agt ggt gat ggg aat agt aaa tta aaa agt gag tag atggatt His Ser Ser Gly Asp Gly Asn Ser Lys Leu Lys Ser Glu * 462 467 472	1502
tggacaacat aaagcaacaa aatttgagat ggttgaatga gggccggagg ccatgatgaa	1562
aagggcactt tggaaagggt tgggggtggaa gggaaatatt tccgggtggg tgtgagctgt	1622
tgggcttcca ggtcagctct tggccatgca gccatgcctg caggatgatc agaagtcacg	1682
gcacctcatg ggaagggttaa gactggagca aagcttttcc aagtgtgacc cagagaccag	1742

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ccattttaat aagataccta gctgattttt tgcacagcaa actttgaaaaa cccctggtct 1862
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ttgaaaaaaa aaaaa 1937

<210> 1097
<211> 3144
<212> DNA
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<220>
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<222> (129) .. (2027)

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tgaaaaag atg gat act atg atg ctg aat gtg cgg aat ctg ttt gag cag 170
Met Asp Thr Met Met Leu Asn Val Arg Asn Leu Phe Glu Gln
1 5 10
ctt gtg cgc cgg gtg gag att ctc agt gaa gga aat gaa gtc caa ttt 218
Leu Val Arg Arg Val Glu Ile Leu Ser Glu Gly Asn Glu Val Gln Phe
15 20 25 30
atc cag ttg gcg aag gac ttt gag gat ttc cgt aaa aag tgg cag agg 266
Ile Gln Leu Ala Lys Asp Phe Glu Asp Phe Arg Lys Lys Trp Gln Arg
31 36 41 46
act gac cat gag ctg ggg aaa tac aag gat ctt ttg atg aaa gca gag 314
Thr Asp His Glu Leu Gly Lys Tyr Lys Asp Leu Leu Met Lys Ala Glu
47 52 57 62
act gag cga agt gct ctg gat gtt aag ctg aag cat gca cgt aat cag 362
Thr Glu Arg Ser Ala Leu Asp Val Lys Leu Lys His Ala Arg Asn Gln
63 68 73 78
gtg gat gta gag atc aaa cgg aga cag aga gct gag gct gac tgc gaa 410
Val Asp Val Glu Ile Lys Arg Arg Gln Arg Ala Glu Ala Asp Cys Glu
79 84 89 94
aag ctg gaa cga cag att cag ctg att cga gag atg ctc atg tgt gac 458
Lys Leu Glu Arg Gln Ile Gln Leu Ile Arg Glu Met Leu Met Cys Asp
95 100 105 110
aca tct ggc agc att caa cta agc gag gag caa aaa tca gct ctg gct 506
Thr Ser Gly Ser Ile Gln Leu Ser Glu Glu Gln Lys Ser Ala Leu Ala
111 116 121 126

ttt ctc aac aga ggc caa cca tcc agc agc aat gct ggg aac aaa aga	554
Phe Leu Asn Arg Gly Gln Pro Ser Ser Ser Asn Ala Gly Asn Lys Arg	
127 132 137 142	
cta tca acc att gat gaa tct ggt tcc att tta tca gat atc agc ttt	602
Leu Ser Thr Ile Asp Glu Ser Gly Ser Ile Leu Ser Asp Ile Ser Phe	
143 148 153 158	
gac aag act gat gaa tca ctg gat tgg gac tct tct ttg gtg aag act	650
Asp Lys Thr Asp Glu Ser Leu Asp Trp Asp Ser Ser Leu Val Lys Thr	
159 164 169 174	
ttc aaa ctg aag aag aga gaa aag agg cgc tct act agc cga cag ttt	698
Phe Lys Leu Lys Lys Arg Glu Lys Arg Arg Ser Thr Ser Arg Gln Phe	
175 180 185 190	
gtt gat ggt ccc cct gga cct gta aag aaa act cgt tcc att ggc tct	746
Val Asp Gly Pro Pro Gly Pro Val Lys Lys Thr Arg Ser Ile Gly Ser	
191 196 201 206	
gca gta gac cag ggg aat gaa tcc ata gtt gca aaa act aca gtg act	794
Ala Val Asp Gln Gly Asn Glu Ser Ile Val Ala Lys Thr Thr Val Thr	
207 212 217 222	
gtt ccc aat gat ggc ggg ccc atc gaa gct gtg tcc act att gag act	842
Val Pro Asn Asp Gly Gly Pro Ile Glu Ala Val Ser Thr Ile Glu Thr	
223 228 233 238	
gtg cca tat tgg acc agg agc cga agg aaa aca ggt act tta caa cct	890
Val Pro Tyr Trp Thr Arg Ser Arg Arg Lys Thr Gly Thr Leu Gln Pro	
239 244 249 254	
tgg aac agt gac tcc acc ctg aac agc agg cag ctg gag cca aga act	938
Trp Asn Ser Asp Ser Thr Leu Asn Ser Arg Gln Leu Glu Pro Arg Thr	
255 260 265 270	
gag aca gac agt gtg ggc acg cca cag agt aat gga ggg atg cgc ctg	986
Glu Thr Asp Ser Val Gly Thr Pro Gln Ser Asn Gly Gly Met Arg Leu	
271 276 281 286	
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His Asp Phe Val Ser Lys Thr Val Ile Lys Pro Glu Ser Cys Val Pro	
287 292 297 302	
tgt gga aag cgg ata aaa ttt ggc aaa tta tct ctg aag tgt cga gac	1082
Cys Gly Lys Arg Ile Lys Phe Gly Lys Leu Ser Leu Lys Cys Arg Asp	
303 308 313 318	
tgt cgt gtg gtc tct cat cca gaa tgt cgg gac cgc tgt ccc ctt ccc	1130
Cys Arg Val Val Ser His Pro Glu Cys Arg Asp Arg Cys Pro Leu Pro	
319 324 329 334	
tgc att cct acc ctg ata gga aca cct gtc aag att gga gag gga atg	1178
Cys Ile Pro Thr Leu Ile Gly Thr Pro Val Lys Ile Gly Glu Gly Met	
335 340 345 350	
ctg gca gac ttt gtg tcc cag act tct cca atg atc ccc tcc att gtt	1226

Leu Ala Asp Phe Val	Ser Gln Thr Ser Pro	Met Ile Pro Ser Ile Val	
351	356	361	366
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Val His Cys Val Asn	Glu Ile Glu Gln Arg	Gly Leu Thr Glu Thr Gly	
367	372	377	382
ctg tat agg atc tct	ggc tgt gac cgc aca	gta aaa gag ctg aaa gag	1322
Leu Tyr Arg Ile Ser	Gly Cys Asp Arg Thr	Val Lys Glu Leu Lys Glu	
383	388	393	398
aaa ttc ctc aga gtg	aaa act gta ccc ctc	ctc agc aaa gtg gat gat	1370
Lys Phe Leu Arg Val	Lys Thr Val Pro Leu	Leu Ser Lys Val Asp Asp	
399	404	409	414
atc cat gct atc tgt	agc ctt cta aaa gac	ttt ctt cga aac ctc aaa	1418
Ile His Ala Ile Cys	Ser Leu Leu Lys Asp	Phe Leu Arg Asn Leu Lys	
415	420	425	430
gaa cct ctt ctg acc	ttt cgc ctt aac aga	gcc ttt atg gaa gca gca	1466
Glu Pro Leu Leu Thr	Phe Arg Leu Asn Arg	Ala Phe Met Glu Ala Ala	
431	436	441	446
gaa atc aca gat gaa	gac aac agc ata gct	gcc atg tac caa gct gtt	1514
Glu Ile Thr Asp Glu	Asp Asn Ser Ile Ala	Ala Met Tyr Gln Ala Val	
447	452	457	462
ggg gaa ctg ccc cag	gcc aac agg gac aca	tta gct ttc ctc atg att	1562
Gly Glu Leu Pro Gln	Ala Asn Arg Asp Thr	Leu Ala Phe Leu Met Ile	
463	468	473	478
cac ttg cag aga gtg	gct cag agt cca cat	act aaa atg gat gtt gcc	1610
His Leu Gln Arg Val	Ala Gln Ser Pro His	Thr Lys Met Asp Val Ala	
479	484	489	494
aat ctg gct aaa gtc	ttt ggc cct aca ata	gtg gcc cat gct gtg ccc	1658
Asn Leu Ala Lys Val	Phe Gly Pro Thr Ile	Val Ala His Ala Val Pro	
495	500	505	510
aat cca gac cca gtg	aca atg tta cag gac	atc aag cgt caa ccc aag	1706
Asn Pro Asp Pro Val	Thr Met Leu Gln Asp	Ile Lys Arg Gln Pro Lys	
511	516	521	526
gtg gtt gag cgc ctg	ctt tcc ttg cct ctg	gag tat tgg agt cag ttc	1754
Val Val Glu Arg Leu	Leu Ser Leu Pro Leu	Glu Tyr Trp Ser Gln Phe	
527	532	537	542
atg atg gtg gag caa	gag aac att gac ccc	cta cat gtc att gaa aac	1802
Met Met Val Glu Gln	Glu Asn Ile Asp Pro	Leu His Val Ile Glu Asn	
543	548	553	558
tca aat gcc ttt tca	aca cca cag aca cca	gat att aaa gtg agt tta	1850
Ser Asn Ala Phe Ser	Thr Pro Gln Thr Pro	Asp Ile Lys Val Ser Leu	
559	564	569	574
ctg gga cct gtg acc	act cct gaa cat cag	ctt ctc aag act cct tca	1898
Leu Gly Pro Val Thr	Thr Pro Glu His Gln	Leu Leu Lys Thr Pro Ser	

3145

575	580	585	590	
tct ggt tcc ctg tca	cag aga gtc cgt tcc	acc ctc acc aag aac act		1946
Ser Gly Ser Leu Ser	Gln Arg Val Arg Ser	Thr Leu Thr Lys Asn Thr		
591	596	601	606	
cct aga ttt ggg agc	aaa agc aag tct gcc	act aac cta gga cga caa		1994
Pro Arg Phe Gly Ser	Lys Ser Lys Ser Ala	Thr Asn Leu Gly Arg Gln		
607	612	617	622	
ggc aac ttt ttt gct	tct cca atg ctc aag	tga agtcacat ctgcctgtta		2045
Gly Asn Phe Phe Ala	Ser Pro Met Leu Lys *			
623	628	633		
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attcattctg atgcttggcc	cccatacccc caacctgtc	cagtggagcc caacttctaa		2825
aggtcaatat atcatccttt	ggcatcccaa ctaacaataa	agagtaggct ataagggag		2885
attgtcaata ttttgtggta	agaaaagcta cagtcatttt	ttctttgcac tttggatgct		2945
gaaatttttc ccatggaaca	tagccacatc tagatagatg	tgagcttttt cttctgttaa		3005
aattattctt aatgtctgta	aaaacgattt tcttctgtag	aatgtttgac ttcgtattga		3065
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aaagtgcaaa aaaaaaaaa				3144

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<220>
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<222> (177)..(1775)

<400> 1098

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tggtcgcgtg gctgcgtggc tcggttcttg tgagcgaagc tttgtccggt tcggca      176
atg gac gga atc gtc act gag gtt gca gtt ggc gtg aag aga gga tct      224
Met Asp Gly Ile Val Thr Glu Val Ala Val Gly Val Lys Arg Gly Ser
  1           5           10           15

gac gaa cta ctc tca ggc agt gtt ctc agt agt ccg aac tct aat atg      272
Asp Glu Leu Leu Ser Gly Ser Val Leu Ser Ser Pro Asn Ser Asn Met
  17           22           27           32

agc agc atg gta gtt aca gcc aat ggt aat gat agt aaa aaa ttt aaa      320
Ser Ser Met Val Val Thr Ala Asn Gly Asn Asp Ser Lys Lys Phe Lys
  33           38           43           48

gga gaa gat aaa atg gat ggt gct cct tct cgt gta ctt cat att cga      368
Gly Glu Asp Lys Met Asp Gly Ala Pro Ser Arg Val Leu His Ile Arg
  49           54           59           64

aaa tta cct ggg gaa gta aca gaa act gaa gtt att gct tta ggc tta      416
Lys Leu Pro Gly Glu Val Thr Glu Thr Glu Val Ile Ala Leu Gly Leu
  65           70           75           80

cct ttt ggt aag gtg acc aac atc ctt atg ctg aaa gga aaa aat cag      464
Pro Phe Gly Lys Val Thr Asn Ile Leu Met Leu Lys Gly Lys Asn Gln
  81           86           91           96

gca ttt ttg gaa cta gca acc gag gaa gca gct att act atg gtt aat      512
Ala Phe Leu Glu Leu Ala Thr Glu Glu Ala Ala Ile Thr Met Val Asn
  97           102           107           112

tac tat tct gct gtg aca cct cat ctt cgt aac caa cca ata tat atc      560
Tyr Tyr Ser Ala Val Thr Pro His Leu Arg Asn Gln Pro Ile Tyr Ile
  113           118           123           128

cag tac tcg aat cac aaa gaa cta aag aca gat aat aca tta aac caa      608
Gln Tyr Ser Asn His Lys Glu Leu Lys Thr Asp Asn Thr Leu Asn Gln
  129           134           139           144

cgt gct cag gca gtt ctt caa gct gtg aca gct gtc cag aca gca aat      656
Arg Ala Gln Ala Val Leu Gln Ala Val Thr Ala Val Gln Thr Ala Asn
  145           150           155           160

act cct ctt agt ggc acc aca gtt agc gag agt gca gtg act cca gcc      704
Thr Pro Leu Ser Gly Thr Thr Val Ser Glu Ser Ala Val Thr Pro Ala
  161           166           171           176

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cag agt cca gta ctt aga ata att att gac aac atg tac tac cct gta	752
Gln Ser Pro Val Leu Arg Ile Ile Ile Asp Asn Met Tyr Tyr Pro Val	
177 182 187 192	
aca ctt gat gtt ctt cac caa ata ttt tct aag ttt ggt gct gta ttg	800
Thr Leu Asp Val Leu His Gln Ile Phe Ser Lys Phe Gly Ala Val Leu	
193 198 203 208	
aag ata atc aca ttt aca aaa aat aac cag ttt caa gct ttg ctc cag	848
Lys Ile Ile Thr Phe Thr Lys Asn Asn Gln Phe Gln Ala Leu Leu Gln	
209 214 219 224	
tat ggt gat cca gta aat gct caa caa gca aaa cta gcc cta gat ggt	896
Tyr Gly Asp Pro Val Asn Ala Gln Gln Ala Lys Leu Ala Leu Asp Gly	
225 230 235 240	
cag aat att tat aat gcc tgc tgt acc cta agg att gat ttt tcc aaa	944
Gln Asn Ile Tyr Asn Ala Cys Cys Thr Leu Arg Ile Asp Phe Ser Lys	
241 246 251 256	
ctt gtg aat ttg aat gta aaa tac aac aat gat aaa agt agg gat tat	992
Leu Val Asn Leu Asn Val Lys Tyr Asn Asn Asp Lys Ser Arg Asp Tyr	
257 262 267 272	
act cga cct gat ctt cca tct ggg gat gga caa cct gca ttg gac cca	1040
Thr Arg Pro Asp Leu Pro Ser Gly Asp Gly Gln Pro Ala Leu Asp Pro	
273 278 283 288	
gct att gct gca gca ttt gcc aag gag aca tcc ctc tta gct gtt cca	1088
Ala Ile Ala Ala Ala Phe Ala Lys Glu Thr Ser Leu Leu Ala Val Pro	
289 294 299 304	
gga gct ctg agt cct ttg gcc att cca aat gct gct gca gca gct gct	1136
Gly Ala Leu Ser Pro Leu Ala Ile Pro Asn Ala Ala Ala Ala Ala	
305 310 315 320	
gca gct gct gct ggc cga gtg ggt atg cct gga gtc tca gct ggt ggc	1184
Ala Ala Ala Ala Gly Arg Val Gly Met Pro Gly Val Ser Ala Gly Gly	
321 326 331 336	
aat aca gtc ctg ttg gtt agc aat tta aat gaa gag atg gtt acg ccc	1232
Asn Thr Val Leu Leu Val Ser Asn Leu Asn Glu Glu Met Val Thr Pro	
337 342 347 352	
caa agt ctg ttt acc ctc ttc ggt gtt tat gga gat gtg cag cgt gtg	1280
Gln Ser Leu Phe Thr Leu Phe Gly Val Tyr Gly Asp Val Gln Arg Val	
353 358 363 368	
aag att tta tac aat aag aaa gac agc gct cta ata cag atg gct gat	1328
Lys Ile Leu Tyr Asn Lys Lys Asp Ser Ala Leu Ile Gln Met Ala Asp	
369 374 379 384	
gga aac caa tca caa ctt gcc atg aat cat ctt aat gga cag aaa atg	1376
Gly Asn Gln Ser Gln Leu Ala Met Asn His Leu Asn Gly Gln Lys Met	
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tat gga aaa att att cgt gtt act ctg tct aaa cat cag act gta cag	1424

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<400> 1099

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 Met Lys Leu His Cys
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gag gtg gag gtg atc agc cgg cac ttg ccc gcc ttg ggg ctt agg aac 102
 Glu Val Glu Val Ile Ser Arg His Leu Pro Ala Leu Gly Leu Arg Asn
 6 11 16 21

cgg ggc aag ggc gtc cga gcc gtg ttg agc ctc tgt cag cag act tcc 150
 Arg Gly Lys Gly Val Arg Ala Val Leu Ser Leu Cys Gln Gln Thr Ser
 22 27 32 37

agg agt cag ccg ccg gtc cga gcc ttc ctg ctc atc tcc acc ctg aag 198
 Arg Ser Gln Pro Pro Val Arg Ala Phe Leu Leu Ile Ser Thr Leu Lys
 38 43 48 53

gac aag cgc ggg acc cgc tat gag cta agg gag aac att gag caa ttc 246
 Asp Lys Arg Gly Thr Arg Tyr Glu Leu Arg Glu Asn Ile Glu Gln Phe
 54 59 64 69

ttc acc aaa ttt gta gat gag ggg aaa gcc act gtt cgg tta aag gag 294
 Phe Thr Lys Phe Val Asp Glu Gly Lys Ala Thr Val Arg Leu Lys Glu
 70 75 80 85

cct cct gtg gat atc tgt cta agt aag gcc att tcc agc agt tta aaa 342
 Pro Pro Val Asp Ile Cys Leu Ser Lys Ala Ile Ser Ser Ser Leu Lys
 86 91 96 101

ggt ttc ctt tca gct atg aga ctg gct cat aga ggc tgt aat gtt gat 390
 Gly Phe Leu Ser Ala Met Arg Leu Ala His Arg Gly Cys Asn Val Asp
 102 107 112 117

aca cca gtt tca acg ctc aca cca gtg aag act tca gaa ttt gaa aac 438
 Thr Pro Val Ser Thr Leu Thr Pro Val Lys Thr Ser Glu Phe Glu Asn
 118 123 128 133

ttt aaa act aaa atg gtt atc aca tcc aaa aaa gac tat cct cta agt 486
 Phe Lys Thr Lys Met Val Ile Thr Ser Lys Lys Asp Tyr Pro Leu Ser
 134 139 144 149

aag aat ttt cca tat tcc ttg gaa cat ctt cag act tct tac tgt ggg 534
 Lys Asn Phe Pro Tyr Ser Leu Glu His Leu Gln Thr Ser Tyr Cys Gly
 150 155 160 165

ctt gtc cga gtt gat atg cgt atg ctt tgc tta aaa agc ctt agg aaa 582
 Leu Val Arg Val Asp Met Arg Met Leu Cys Leu Lys Ser Leu Arg Lys
 166 171 176 181

tta gac ttg agt cac aac cat ata aaa aag ctt cca gct aca att gga	630
Leu Asp Leu Ser His Asn His Ile Lys Lys Leu Pro Ala Thr Ile Gly	
182 187 192 197	
gac ctc ata cac ctt caa gaa ctt aac ctg aat gac aat cac ttg gag	678
Asp Leu Ile His Leu Gln Glu Leu Asn Leu Asn Asp Asn His Leu Glu	
198 203 208 213	
tca ttt agt gta gcc ttg tgt cat tct aca ctc cag aag tca ctt cgg	726
Ser Phe Ser Val Ala Leu Cys His Ser Thr Leu Gln Lys Ser Leu Arg	
214 219 224 229	
agt ttg gac ctc agc aag aac aaa atc aag gca ctc cct gtg cag ttt	774
Ser Leu Asp Leu Ser Lys Asn Lys Ile Lys Ala Leu Pro Val Gln Phe	
230 235 240 245	
tgc cag ctc cag gaa ctt aag aat tta aaa ctt gac gat aat gaa ttg	822
Cys Gln Leu Gln Glu Leu Lys Asn Leu Lys Leu Asp Asp Asn Glu Leu	
246 251 256 261	
att caa ttt cct tgc aag ata gga caa cta ata aac ctt cgc ttt ttg	870
Ile Gln Phe Pro Cys Lys Ile Gly Gln Leu Ile Asn Leu Arg Phe Leu	
262 267 272 277	
tca gca gct cga aat aag ctt cca ttt ttg cct agt gaa ttt aga aat	918
Ser Ala Ala Arg Asn Lys Leu Pro Phe Leu Pro Ser Glu Phe Arg Asn	
278 283 288 293	
tta tcc ctt gaa tac ttg gat ctt ttt gga aat act ttt gaa caa cca	966
Leu Ser Leu Glu Tyr Leu Asp Leu Phe Gly Asn Thr Phe Glu Gln Pro	
294 299 304 309	
aaa gtc ctt cca gta ata aag ctg caa gca cca tta act tta ttg gaa	1014
Lys Val Leu Pro Val Ile Lys Leu Gln Ala Pro Leu Thr Leu Leu Glu	
310 315 320 325	
tct tct gca cga acc ata tta cat aat agg att cca tat ggc tct cat	1062
Ser Ser Ala Arg Thr Ile Leu His Asn Arg Ile Pro Tyr Gly Ser His	
326 331 336 341	
atc att cca ttc cat ctc tgc caa gat ttg gat acc gca aaa att tgt	1110
Ile Ile Pro Phe His Leu Cys Gln Asp Leu Asp Thr Ala Lys Ile Cys	
342 347 352 357	
gtt tgt gga aga ttc tgt ctg aac tct ttc att caa gga act act acc	1158
Val Cys Gly Arg Phe Cys Leu Asn Ser Phe Ile Gln Gly Thr Thr Thr	
358 363 368 373	
atg aat ctg cat tct gtt gcc cac act gtg gtc tta gta gat aat ttg	1206
Met Asn Leu His Ser Val Ala His Thr Val Val Leu Val Asp Asn Leu	
374 379 384 389	
ggg ggt act gaa gca cct att atc tct tat ttc tgt tct cta ggc tgt	1254
Gly Gly Thr Glu Ala Pro Ile Ile Ser Tyr Phe Cys Ser Leu Gly Cys	
390 395 400 405	
tat gtt aat tcc tct gat atg tta aag taa t gggtgagacc agaaaaagaa	1305

Tyr Val Asn Ser Ser Asp Met Leu Lys *
 406 411

atttcaataa cagatcagtt tggggtgcat gtatgatttt gcagcgtcaa attggagtaa 1365
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 atg gac atg gtg cac ctg gtc cat gcc aag aat gcc cag gct ctg gcc 164
 Met Asp Met Val His Leu Val His Ala Lys Asn Ala Gln Ala Leu Ala
 1 5 10 15
 agc gac cac gac tac agg aca cag tat cac aag ttc aca gca ctg ccc 212
 Ser Asp His Asp Tyr Arg Thr Gln Tyr His Lys Phe Thr Ala Leu Pro
 17 22 27 32
 gag gac ctg aag atg gcc tgg gcc aag aaa gcc cat gcc ctg cag agt 260
 Glu Asp Leu Lys Met Ala Trp Ala Lys Lys Ala His Ala Leu Gln Ser
 33 38 43 48
 gag ttg cgc tac aag tca gac ctg atc ggc atg aag ggc ata gga tgg 308
 Glu Leu Arg Tyr Lys Ser Asp Leu Ile Gly Met Lys Gly Ile Gly Trp
 49 54 59 64
 ctg gcg ctg aga tcc cca cag atg gag agt gca aag aag gct gga gaa 356
 Leu Ala Leu Arg Ser Pro Gln Met Glu Ser Ala Lys Lys Ala Gly Glu
 65 70 75 80
 ctc atc agc gag acc aag tac cgt aaa aaa cca gac agt atc aag ttc 404
 Leu Ile Ser Glu Thr Lys Tyr Arg Lys Lys Pro Asp Ser Ile Lys Phe
 81 86 91 96
 acc aca gtg gtt gac tcc cca gac ctg gtt cat gcc aag aac agc tat 452
 Thr Thr Val Val Asp Ser Pro Asp Leu Val His Ala Lys Asn Ser Tyr
 97 102 107 112
 atg cac tgc aat gag cgc atg tat aga tct gga gat gca gaa tcc ctg 500
 Met His Cys Asn Glu Arg Met Tyr Arg Ser Gly Asp Ala Glu Ser Leu
 113 118 123 128

cac aga tac acc ctg atc ccc gac cat ccc gat ttc acc cga gct cgc	548
His Arg Tyr Thr Leu Ile Pro Asp His Pro Asp Phe Thr Arg Ala Arg	
129 134 139 144	
ctc aat gcg ctg cat ctg agt gac aaa gtc tac aga aac tcc tgg gag	596
Leu Asn Ala Leu His Leu Ser Asp Lys Val Tyr Arg Asn Ser Trp Glu	
145 150 155 160	
cag acc cgg gct ggc agt tat gac ttc agg ctg gat gcc atc ccc ttc	644
Gln Thr Arg Ala Gly Ser Tyr Asp Phe Arg Leu Asp Ala Ile Pro Phe	
161 166 171 176	
cag act gcc cgg gca tct agg gag atc gcc agt gat ttc cgg tac aaa	692
Gln Thr Ala Arg Ala Ser Arg Glu Ile Ala Ser Asp Phe Arg Tyr Lys	
177 182 187 192	
gag gct ttc ctg cgg gac cga ggc ctg cag atc ggg tac cgc agt gtc	740
Glu Ala Phe Leu Arg Asp Arg Gly Leu Gln Ile Gly Tyr Arg Ser Val	
193 198 203 208	
gac gat gac cca agg atg aag cat ttc ctc aac gtt ggc agg ctc cag	788
Asp Asp Asp Pro Arg Met Lys His Phe Leu Asn Val Gly Arg Leu Gln	
209 214 219 224	
agt gac aat gag tac aag aag gac ttt gcc aag agt cgg tcc cag ttt	836
Ser Asp Asn Glu Tyr Lys Lys Asp Phe Ala Lys Ser Arg Ser Gln Phe	
225 230 235 240	
cac agc agc aca gac cag ccc ggc ctc ctt cag gcc aag agg agc cag	884
His Ser Ser Thr Asp Gln Pro Gly Leu Leu Gln Ala Lys Arg Ser Gln	
241 246 251 256	
cag ctg gcc agt gat gtg cac tac agg cag ccc ctg ccc cag ccc acc	932
Gln Leu Ala Ser Asp Val His Tyr Arg Gln Pro Leu Pro Gln Pro Thr	
257 262 267 272	
tgc gac ccg gag cag ctg ggc ctc agg cat gct cag aag gcc cac cag	980
Cys Asp Pro Glu Gln Leu Gly Leu Arg His Ala Gln Lys Ala His Gln	
273 278 283 288	
ctg cag agt gat gtc aag tat aaa tca gac ttg aac ctg acc aga ggt	1028
Leu Gln Ser Asp Val Lys Tyr Lys Ser Asp Leu Asn Leu Thr Arg Gly	
289 294 299 304	
gtt ggc tgg acc cct cct ggc tcc tac aaa gtg gaa atg gct cgg cgg	1076
Val Gly Trp Thr Pro Pro Gly Ser Tyr Lys Val Glu Met Ala Arg Arg	
305 310 315 320	
gct gcg gaa ctg gcc aac gca agg ggc ctg ggt ctc cag gga gct tac	1124
Ala Ala Glu Leu Ala Asn Ala Arg Gly Leu Gly Leu Gln Gly Ala Tyr	
321 326 331 336	
cgg ggg gca gaa gca gtg gag gct gga gat cat cag agt ggg gag gtg	1172
Arg Gly Ala Glu Ala Val Glu Ala Gly Asp His Gln Ser Gly Glu Val	
337 342 347 352	
aac cca gat gcc act gag att ctg cac gtc aaa aag aag aag gcc ctg	1220

Asn Pro Asp Ala Thr Glu Ile Leu His Val Lys Lys Lys Lys Ala Leu
 353 358 363 368

ctg ttg tga gccatgt ccaccctgat tcttgagagg ccagagagga agtttgttca 1276
 Leu Leu *
 369

ccagagacag gcttcagatg gctttgattt cggcaagctg gaatggccca ccagcccatc 1336

ccagatcttc ctttattaaa ataataactc tgaaagcaaa aaaaaa 1382

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 gacaagctgc ggctcagccc cactgacctt ggctcctgcc cgccctgcgg cccctgcccc 180
 atcccgaaagc cggcagccag aggcaggcgc cagagtcaag actggggcaa gaggtagcag 240
 aggctgctac aagccgtgga aaacaacgat gcacctcggg tggccgccct catcgccgc 300
 aaggggctgg tgcccacgaa gctagacccc gagggcaagt ccgcgttcca cctggcgggc 360
 atgccccgtg cggccagctg tctggagggtg atgatagctc atggcagcaa tgtcatgagc 420
 gcggacgggg cagggttaca tgccctccac ctggccgcca aatacgggca cccacagtgc 480
 ttgaagcaac tactgcaggc ttctgctgtg gtggacgtcg tggacagcag cgggtggact 540
 gccctacacc atg cag ggg tgg att gcc cta gca gcg gct ggt ggc tgt 589
 Met Gln Gly Trp Ile Ala Leu Ala Ala Gly Gly Cys
 1 5 10

ctc tcc tgc tca gag gtg ctc tgc tcc ttt aag gca cat cta aac ccc 637
 Leu Ser Cys Ser Glu Val Leu Cys Ser Phe Lys Ala His Leu Asn Pro
 14 19 24 29

caa gat cgg tca ggc gca aca ccc ctc att ata gca gct cag atg tgt 685
 Gln Asp Arg Ser Gly Ala Thr Pro Leu Ile Ile Ala Ala Gln Met Cys
 30 35 40 45

/
 cac aca gac ctg tgc cgt ctc cta ctg cag caa ggg gct gcc gcg aac 733
 His Thr Asp Leu Cys Arg Leu Leu Leu Gln Gln Gly Ala Ala Ala Asn
 46 51 56 61

1

5

aat caa gaa ctg gca aat gaa gtc tcc tgc ctg aaa gcg atg ctg acg 577
 Asn Gln Glu Leu Ala Asn Glu Val Ser Cys Leu Lys Ala Met Leu Thr
 12 17 22 27

ctg atg ctg cag gcg atg gga caa gct gac gcg ggc cgc gtg atg tta 625
 Leu Met Leu Gln Ala Met Gly Gln Ala Asp Ala Gly Arg Val Met Leu
 28 33 38 43

aag atg gaa aaa cag ctt gcg ctg atc gaa gac gaa acc cag gct gca 673
 Lys Met Glu Lys Gln Leu Ala Leu Ile Glu Asp Glu Thr Gln Ala Ala
 44 49 54 59

gta ttt tcc aaa acg gtt aag caa att aaa caa gcc tac cgt cag taa 721
 Val Phe Ser Lys Thr Val Lys Gln Ile Lys Gln Ala Tyr Arg Gln *
 60 65 70 75

tataaaaccg gctgatagcg tgcctttcag ccggtttttg catctggcac gcaggacaga 781

aaagagatca aattaagcca gtagcggcgg ct 813

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<211> 1211

<212> DNA

<213> Homo sapiens

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<222> (541) .. (1080)

<400> 1103

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cgtatTTTTG ggccggtaac tcgtgagctt cgtagtgaga agttcatgaa aattatctct 180

ctggcaccag aagtactcta aggagcgaat catggcagcg aaaatccgtc gtcatgacga 240

agttatcgtg ttaaccggta aagataaagg taaacgcggt aaagttaaga atgtcctgtc 300

ttccggcaag gtcattgttg aaggtatcaa cctggttaag aaacatcaga agccggttcc 360

ggccctgaac caaccgggtg gcatcggtga aaaagaagcc gctattcagg ttccaacgt 420

agcaatTTTc aatgcggcaa ccggcaaggc tgaccgtgta ggcttttagat tcgaagacgg 480

taaaaaagtc cgtttcttca agtctaacag cgaaactatc aagtaatttg gagtagtacg 540

atg gcg aaa ctg cat gat tac tac aaa gac gaa gta gtt aaa aaa ctc 588
 Met Ala Lys Leu His Asp Tyr Tyr Lys Asp Glu Val Val Lys Lys Leu
 1 5 10 15

atg act gag ttt aac tac aat tct gtc atg caa gtc cct cgg gtc gag	636
Met Thr Glu Phe Asn Tyr Asn Ser Val Met Gln Val Pro Arg Val Glu	
17 22 27 32	
aag atc acc ctg aac atg ggt gtt ggt gaa gcg atc gct gac aaa aaa	684
Lys Ile Thr Leu Asn Met Gly Val Gly Glu Ala Ile Ala Asp Lys Lys	
33 38 43 48	
ctg ctg gat aac gca gca gca gac ctg gca gca atc tcc ggt caa aaa	732
Leu Leu Asp Asn Ala Ala Ala Asp Leu Ala Ala Ile Ser Gly Gln Lys	
49 54 59 64	
ccg ctg atc acc aaa gca cgc aaa tct gtt gca ggc ttc aaa atc cgt	780
Pro Leu Ile Thr Lys Ala Arg Lys Ser Val Ala Gly Phe Lys Ile Arg	
65 70 75 80	
cag ggc tat ccg atc ggc tgt aaa gta act ctg cgt ggc gaa cgc atg	828
Gln Gly Tyr Pro Ile Gly Cys Lys Val Thr Leu Arg Gly Glu Arg Met	
81 86 91 96	
tgg gag ttc ttt gag cgc ctg atc act att gct gta cct cgt atc cgt	876
Trp Glu Phe Phe Glu Arg Leu Ile Thr Ile Ala Val Pro Arg Ile Arg	
97 102 107 112	
gac ttc cgt ggc ctg tcc gct aag tct ttc gac ggt cgt ggt aac tac	924
Asp Phe Arg Gly Leu Ser Ala Lys Ser Phe Asp Gly Arg Gly Asn Tyr	
113 118 123 128	
agc atg ggt gtc cgt gag cag atc atc ttc cca gaa atc gac tac gat	972
Ser Met Gly Val Arg Glu Gln Ile Ile Phe Pro Glu Ile Asp Tyr Asp	
129 134 139 144	
aaa gtc gac cgc gtt cgt ggt ttg gat att acc att acc act act gcg	1020
Lys Val Asp Arg Val Arg Gly Leu Asp Ile Thr Ile Thr Thr Ala	
145 150 155 160	
aaa tct gac gaa gaa ggc cgc gct ctg ctg gct gcc ttt gac ttc ccg	1068
Lys Ser Asp Glu Glu Gly Arg Ala Leu Leu Ala Ala Phe Asp Phe Pro	
161 166 171 176	
ttc cgc aag taa ggt aggggttacta aatgggctaag caatcaatga aagcacgcga	1123
Phe Arg Lys *	
177	
agtaaaacgc gtagcttttag ctgataaata cttcgcgaaa cgcgctgaac tgaaagcgat	1183
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<211> 1327

<212> DNA

<213> Homo sapiens

<220>

<222> (251) .. (1300)

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gattcagtgc atg caa gag atg gga aat gga aag gca aac cga ctt tat 289

gaa gcc tat ctt cct gag acc ttt cgg cga cct cag atg gac cca gct 337

gtt gaa gga ttt att cga gac aaa tat gag aag aag aaa tac atg gac 385

cga agt ctg gac atc aat gcc ttt agg aaa gaa aaa gat gac aag tgg 433

aaa aga ggg agc gaa cca gtt cca gaa aaa aaa ttg gaa cct gtt gtt 481

ttt gag aag gtg aaa atg cca cag aaa aaa gaa gac cca cag cta cct 529

cgg aaa agc tcc ccg aaa tcc aca gcg cct gtc atg gat ttg ttg ggc 577

ctt gat gct cct gtg gcc tgc tcc att gca aat agt aag acc agc aat 625

acc cta gag aag gat tta gat ctg ttg gcc tct gtt cca tcc cct tct 673

tct tcg ggt . tcc aga aag gtt gta ggt tcc atg cca act gca ggg agt 721

gcc ggc tct gtt cct gaa aat ctg aac ctg ttt ccg qag cca ggg agc 769

aaa tca gaa gaa ata ggc aag aaa cag ctc tct aaa gac tcc att ctt 817

3159